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## **One Day International e-Seminar on “Internet of things Technology, Sensor Devices and Big Data”**

( 19<sup>th</sup> December, 2020 )



**Seminar Special Issue - 20**

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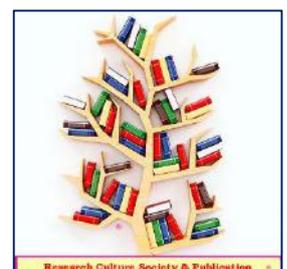


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# One Day International e-Seminar on Internet of things Technology, Sensor Devices and Big Data

(IoTSDBD– 2020)

19<sup>th</sup> December, 2020

Special Issue – 20

**The Managing Editor:**

Dr. Chirag M. Patel

(Research Culture Society & Publication)

**Jointly Organized By**

Department of Computer Science & Department of Physics,  
Sir Sayyed College of Arts, Commerce & Science  
Aurangabad (MS) India.



and

Research Culture Society



# International e-Seminar on Internet of Things Technology, Sensor Devices and Big Data

(IoTSDBD– 2020) 19<sup>th</sup> December, 2020

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## College Profile

Sir Sayyed College of Arts, Commerce & Science which runs under the aegis of Rehber Educational, Cultural & Welfare Society is one of the minority institutions in Aurangabad city established in 1990. It is one of the leading institutions engaged in imparting quality education in the stream of Arts, Commerce & Science since three decades. Prof. Mohd. Tilawat Ali is the Founder of Sir Sayed College. The ongoing century is being the century of youth, the college is marching ahead under the able guidance of the dynamic President, RECWS, Dr. Shamama Parveen. She has been leading the institution from the front and we are quite sure that she would take the institution to the appreciable heights. With the modest beginning in 1990, Sir Sayyed College has now evolved as a full-fledged college with many courses.

The college has been constantly striving to add new courses in an endeavor to offer quality education and prepare students to face new challenges of 21<sup>st</sup> century. The college offer Arts, Commerce & Science at junior and undergraduate level. Postgraduate courses in Arabic, Urdu, English, and Commerce & Organic Chemistry are also available. To meet the changing economic challenges, the college offer three years professional degree courses such as B.B.A & B.C.S.

The college has a long standing academic tradition and boasts of a team of 34 experienced, well qualified and dedicated faculty with 13 research guides in English, Commerce, History, Chemistry, Botany and Zoology. 28 teachers are doctorates and 11 teachers have qualified SET / NET Examinations so far. 38 students have stood in the merit list of Dr. BAMU, Aurangabad. Three students received GOLD medals in Arts and Science stream.

## **About the e-Seminar : Scope and Objectives**

Internet of things (IoT) technology plays an important role not only in communications and computer science but also in physics due to the rapid spread of usage of sensor devices. The telemetry of different sensed data such as pressure, temperature, illumination, and object detection is one of the potent ways to solve many complex problems by combining them with Big Data. IoT and Data Mining can also be helpful in solving many issues related to e-Health. A lot of applications related to human health and drastic changes in the environment require fast and accurate solutions. Sensor technology in combination with Big Data can help to solve and exceptionally improve the prediction of disaster and quality of life. To implement IoT-based environmental technology for improving the quality of life, we want to introduce the amalgamation of sensor-based communication technologies in collaboration with Big Data analytics and its applications.

In this Topic, we invite the latest research works on emerging innovative methodologies, technologies, and research related to IoT with respect to Big Data technology. The Research Topic will cover a wide area of issues. Areas of interest include:

- Internet of Things (IoT)
- Big Data
- Sensor Devices
- Robotics and automation
- Instrumentation and Control
- Architecture & protocols for IoT & Big Data
- Smart cities and systems using Big Data
- IoT based on various types of sensors
- Privacy & security related to IoT & Big Data
- IoT and Big Data programming model
- Wireless Sensor Networks
- Artificial Intelligence (AI)

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## DESIGN AND IMPLEMENTATION OF ARDUINO BASED SYSTEM FOR EFFECTIVENESS ON GLARE-REDUCTION ON NIGHT DRIVING

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### ABSTRACT:

*Automobile drivers encounter many challenges while driving at night. This may cause substantially risks on the roads tending to cause many accidents. This may be caused by many factors such as poor road visibility by the drivers due to partial blindness by oncoming vehicles, with high intensity and directionality coherent headlight source beams. Generally careless drivers while driving at night fails to dim the lights to other drivers thus making oncoming drivers difficult to drive. However, drivers fail to maintain their lane as a result of avoiding being blinded by headlight of oncoming vehicles. Little research has been done how to reduce headlight glare. Currently there is no effective technology that reduces glare for oncoming automobile headlights at night. However, most drivers use manually methods to dim headlights which are not effective as many drivers ignore and fail to do so when required, a polarized car windscreen for glare-blocking system may be used but its effectiveness to transition may takes more time thus causing more trouble. All above methods may cause drivers to misjudge rectilinear propagation of light in homogeneous transparent medium while trying to bend their heads to avoid the oncoming vehicle high intensity headlight. This work use light sensor and arduino microcontroller based system to control light glare from oncoming automobile. DC motors are used to control tint sheet that cover the some section of the windscreen when oncoming high intensity headlight beam of the oncoming automobile approaches.*

*Keywords, high intensity beam, night road visibility, arduino microcontroller and tint sheet.*

### 1. INTRODUCTION:

The only way to reduce road accidents is by introducing and obeying safety measures. In order to achieve fewer death rates on our roads, measures to reduce the impact on our road safety must be introduced on all road transport networks. However, night accidents have been increasing due to poor visibility of the roads among many factors. High powerful and coherent headlight beams of oncoming vehicles contribute high numbers of accidents cases at night. This work concentrates on Arduino microcontroller based system that reduces light glare from oncoming vehicles to the night drivers. Some systems checks whether the vehicles are over-capacity and if the driver is under alcohol consumption. Recently, most vehicles use speed track system that using GPS and GSM technologies, this will monitor and manages speed of the vehicles on the road. Data from Traffic departments shows that death rates at night are three times more than during the day time, yet many drivers do not take night driving precautions for effective ways to deal with road hazards. Edwin (1948) came up with the sheet polarizer to reduce glare on vehicles headlights. This technology was unsuccessful and didn't solve the problem when vehicles meet near the corner. It could work well to drivers moving on parallel directions. Driving at night is more dangerous than during the day. One of the obvious reasons is temporally blindness caused by oncoming vehicles. Effective measures to minimize night accidents can be taken by introducing and enforcing proper guidelines. Several optical measures can be used also to reduce the effects of glare during night driving. Such as anti-reflective coating can be used to decrease reflected light and glare during driving at night.

Drivers at night can use lenses such photochromic transition which is used to reduce the effects of glare. These enhance more additional protection but can cause temporary bride due to reflected glare back to the eyes. This paper focuses on the moving up and down of tint sheet by rotated DC motor which gets activated by optic sensors once it detects oncoming vehicles light. A light sensor is used to converts light energy to electrical energy. Sensor sends the signals to the arduino for processing and interpretation of the signals.

### 2. ARDUINO:

The Arduino Uno is a microcontroller board based on the ATmega328. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. The Uno differs from all preceding boards in that it does not use the FTDI USB-to-serial driver chip. Instead, it features the Atmega16U2 (Atmega8U2 up to version R2) programmed as a USB-to-serial converter. The Uno is a microcontroller board based on

the ATmega328P. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.

### 3. LIGHT SENSORS:

**THIS WORK USE LIGHT SENSORS CALLED PHOTO-RESISTOR (LDR). IT OPERATES ON SEMICONDUCTOR PHOTOCONDUCTIVITY; CHANGES RESISTANCE DEPENDING ON THE AMOUNT OF LIGHT INCIDENT ON IT, THE ENERGY FROM LIGHT (PHOTONS) REACHES THE SEMICONDUCTOR, FREE ELECTRONS FLOW FREELY DECREASING THE AMOUNT OF RESISTANCE. THE LIGHT SENSOR IS SHOWN IN FIGURE 1. THIS SENSOR OPERATED WITHIN RESISTANCE OF APPROXIMATELY 500 K $\Omega$ , WHEN DARK AND 10 K $\Omega$  IN BRIGHT LIGHT, SENSITIVE TO THE WAVELENGTHS 400-700 NM.**

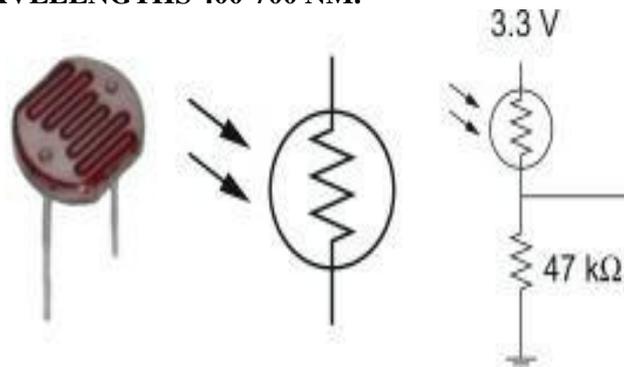


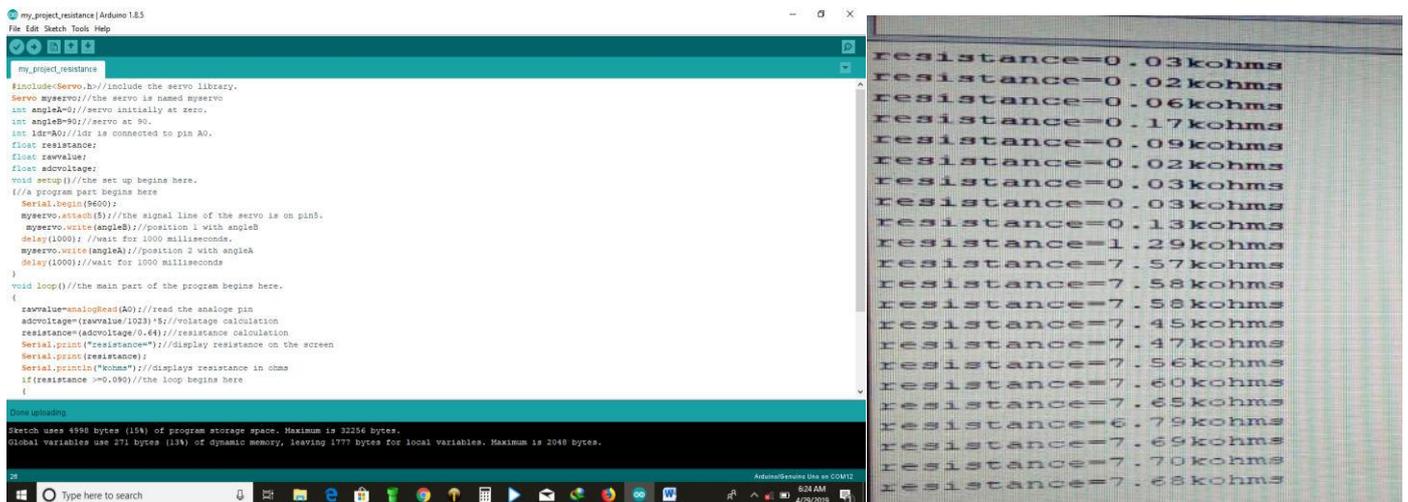
Fig.1. Circuit illustrating how it can be connected to arduino

### 4. MOTOR:

In bright light, the photocell's resistance is around 10 k $\Omega$ , making an output of about 2.7 V. In darkness, the photocell's resistance is around 500 k $\Omega$ , making an output of about 0.3 V. The sensor output could go to a PIC32 digital or analog input.

### 5. CODES:

```
//Arduino DC motor controlling
#define motor_pin 3
void setup() { //setup function
  // put your setup code here, to run once:
  Serial.begin(9600);
  Serial.println("Arduino Motor controller");
  pinMode(motor_pin, OUTPUT);
}
void loop() { //loop function
  // put your main code here, to run repeatedly:
  Serial.println("Motor ON");
  digitalWrite(motor_pin, HIGH); //turn ON motor
  delay(1000); //wait 1second
  Serial.println("Motor OFF");
  digitalWrite(motor_pin, LOW); //turn OFF motor
  delay(1000); //wait 1second
}
```



## 6. CONCLUSION:

This paper shows that deployment of this system, glare reduction technology could greatly reduce road accidents in many countries. Many studies have proven that, accident prevention measures have the potential to decrease road death, enhancing and improving the safety margins.

Moreover, the implementation of this system will add a positive step to reduce roads accidents from vehicles operating in public transportation network. This system may be forced as mandatory installed in all public vehicles to enhance road visibility and reduce light glare to night drivers to avoid accidents.

## REFERENCES:

- [1] S.Sonika, Dr.K.Sathiyasekar, S.Jaishree. "Intelligent accident identification system using GPS, GSM modem", International Journal of Advanced Research in Computer and Communication Engineering Vol.3,Issue-2,Feb 2014.
- [2] Aria, E., Olstam, J., Schweitering, C. "Investigation of Automated Vehicle Effects on Driver's Behavior and Traffic Performance", Trasport Research Procedia ,v. 15, 761-770 p., 2016.
- [3] K.Murali Chandra Babu, P.A.HarshaVardhini, N.Koteswaramma, "Design and Implementation of Arduino based Riders Safe Guard 2.0 " International Journal of Innovative Technology and Exploring Engineering , Volume-9, Issue-1, November 2019.
- [4] Tullio Giuffrè, Antonino Canale, Alessandro Severino , Salvatore Trubia "Automated Vehicles: a Review of Road Safety Implications as a Driver of Change ", 7th CARSP Conference, Toronto, ON, June 18-21, 2017.
- [5] Tabitha S.CombsPhD1,Laura S.SandtPhD2, Michael P.ClamannPhD2, Noreen C.McDonaldPhD1, "Automated Vehicles and Pedestrian Safety: Exploring the Promise and Limits of Pedestrian Detection", American Journal of Preventive Medicine, Volume 56, Issue 1, January 2019.
- [6] Victor McElhery, "Insisting on the impossible: the life of Edwin Land." Perseus books, reading, Massachussets, First printing 1998, ISBN 0-7382-0009-3.

## GSM BASED BLOOD PRESSURE MONITORING SYSTEM

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### ABSTRACT:

*Blood Pressure is a very commonly and most intensively measured parameter in medical practice. Monitoring blood pressure at home is important for elderly people especially if they have high blood pressure. High blood pressure (hypertension) can show serious problems like heart attack, stroke or kidney disease. High blood pressure usually does not have any symptom's that's why there is a need to check the blood pressure of a patient regularly. Hypertension is the silent killer of mankind. Most suffers (85%) are asymptomatic and hence early diagnosis is a problem and is one of the biggest health challenges in the 21st century. The main objective of research work is to design and construct a portable Blood Pressure system to monitor patients who are at a distance and need monitoring for problems like symptoms of Hypertension that is Headaches, Shortness of breath, chest pain etc. The system is build up using an ARM Cortex M3 LPC1768 based biomedical parameter monitoring by supporting GSM/GPRS and internet together in the Wireless Sensor Network (WSN) under HTTP protocol to a database server containing clinical data, which can be acquired through a web application or web browser. The system is designed and utilized using embedded C-language. The systolic, diastolic and heart rate of a patient is displayed on a web page (GUI) and would be helpful to the doctor for further analysis anywhere anytime.*

**KEYWORDS:** Hypertext Transfer Protocol, Wireless Sensor Network, Global System for Mobile Communication, General Packet Radio Service.

### 1. INTRODUCTION:

Blood Pressure is the pressure of blood applied against the arterial walls resulted due to the force generated by contraction of left ventricle and conducted through arteries of the entire body. Blood Pressure is a very commonly and most intensively measured parameter in medical practice. When the left ventricle contracts blood is moved into the aorta. This is known as systole and the value of blood pressure is around 120mm equivalent to Hg level. When the left ventricle is relaxed, the pressure comes down to minimum value about 80mm equivalent to Hg level. This is called diastole. The blood pressure of normal human being lies between 80 to 120mm Hg.

This Blood Pressure Sensor module when placed on the wrist and when it is switched ON by pressing the button for action, it auto pumps itself to get fitted on the wrist of the patient and after few seconds it displays the systolic diastolic and pulse readings on the digital display which is useful for observing the readings. This blood pressure sensor was connected at UART 2 of ARM Cortex M3 LPC1768 Microcontroller which after processing sends these digital data on a server with the help of GSM/GPRS and through AJAX (stands for Asynchronous JavaScript and XML), web applications directly sends and retrieve data from a server asynchronously (in the background) without interfering with the display and behavior of the existing page and finally the systolic, diastolic and heart rate of a patient is displayed on a web page (GUI) [ 1 –3]. These data values is then accessed in MS-Excel and is downloaded easily with the help of a download option which is popping up on the webpage and is helpful to the doctor for further analysis anywhere anytime.

#### 1.1 BLOOD PRESSURE SENSOR:

Monitoring blood pressure at home is important for elderly people especially if they have high blood pressure. Blood pressure does not continue to be the same all the time. It changes to meet their body's need. It is changed by various factors including body position, breathing or emotional state, exercise and sleep. It is best to measure blood pressure when the patient is relaxed or laying down.

High blood pressure (hypertension) can show serious problems like heart attack, stroke or kidney disease. High blood pressure usually does not have any symptom's that's why there is a need to check the blood pressure of a patient regularly.

#### 1.2 BLOOD PRESSURE MONITOR OPERATING PRINCIPLE:

Blood pressure monitor operation depends on the oscillometric method. This method takes benefit of the pressure pulsations taken during measurements. An occluding cuff is placed on the left arm and is joined to an air pump and a pressure sensor. Cuff is inflated until a pressure greater than the typical systolic value is carried, then the cuff is slowly deflated. As the cuff deflates, when systolic pressure value bypasses, pulsations start to appear. These pulsations represent the pressure switches due to heart ventricle contraction and can be used to calculate the heartbeat rate. Pulsations increase in amplitude until mean arterial pressure (MAP) is reached, then decrease until they disappear. Figure 1.2. Shows the cuff pressure vs. pulsations.

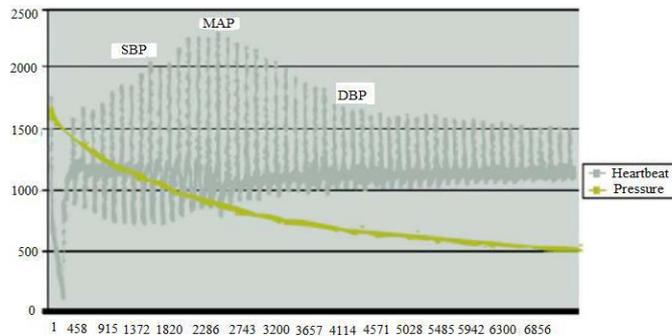


Figure 1.2: Cuff pressure Vs.

Oscillometric method decides the MAP by taking the cuff pressure when the pulse with the largest amplitude appears. Systolic and diastolic values are figured using algorithms that vary among different medical equipment developers. Freescale Blood Pressure Monitor calculates the systolic and diastolic pressure by taking into account that systolic pressure is approximately equal to the pressure measurement taken in the cuff when a pulse with 70% of the amplitude of the MAP pulse arrives while the cuff pressure is above the MAP value. Diastolic pressure is comparatively equal to the cuff pressure when a pulse with 50% of the MAP pulse amplitude appears while the cuff pressure is under the MAP value.

### 1.3 MED-BPM ANALOG FRONT END:

MED-BPM Analog Front End (AFE) is a demo board constructed for work as a blood pressure monitor in conjunction with a Freescale medical-oriented MCU. MED-BPM interacts with the MCU using the medical connector, and concede for easy prototyping and reduced time to market by using the Freescale Tower System. MED-BPM block diagram is shown in figure 1.3.

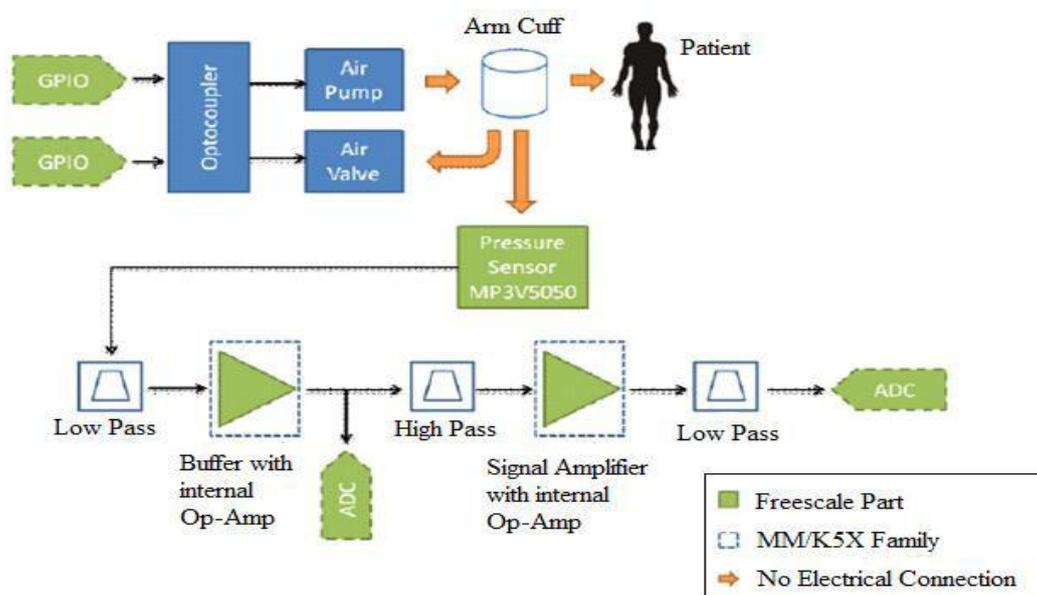


Figure 1.3: Block Diagram of MED-BPM

MED-BPM attempts using an oscillometric method for blood pressure measurements. This is a noninvasive method which depends upon an external arm cuff in order to occlude the patient's arm and detect the systolic and diastolic arterial pressure. The arm cuff is inflated using an external air pump self controlled with an MCU GPIO pin, and deflated by activating an escape valve with another GPIO pin. Because the current accessible by the USB port (500mA) is not enough to activate the air pump and the valve (600mA), those external components are activated by using an external power source which provides sufficient current. An optocoupler is essential for coupling MCU control signals with the components to activate.

## 2. METHODS:

In this Wireless monitoring system the blood pressure sensor module is used to measure the blood pressure and heart rate simultaneously and outputs at 9600 baud rate. This compact device is placed on the wrist and when it is switched ON by pressing the button for action, it auto pumps itself to get fitted on the wrist of the patient and after few seconds it displays the systolic diastolic and pulse readings on the digital display which is useful for observing the readings. The blood pressure sensor is shown in figure 2.1.



Figure 2.1: Blood Pressure Sensor fitted on the Wrist

This blood pressure sensor was connected at UART 2 of ARM Cortex M3 LPC1768 Microcontroller which after processing sends these digital data on a server with the help of GSM/GPRS and through AJAX (stands for Asynchronous JavaScript and XML), web applications directly sends and retrieve data from a server asynchronously (in the background) without interfering with the display and behavior of the existing page and finally the systolic, diastolic and pulse rate of a patient is displayed on a web page (GUI). These data values is then accessed in MS-Excel and is downloaded easily with the help of a download option which is popping up on the webpage and would be helpful to the doctor for further analysis anywhere anytime.

Here in this system the blood pressure sensor data is 15 byte with the baud rate 9600 bits per second. The Blood Pressure sensor is interfaced with the ARM Cortex LPC1768 is shown in figure 2.2.

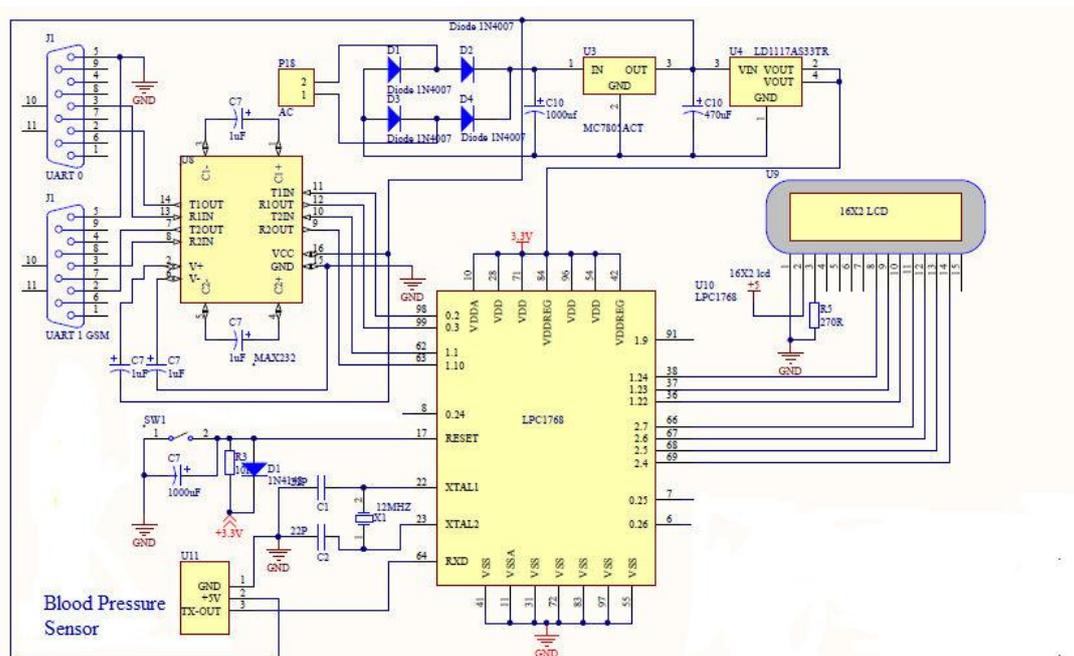


Figure 2.2: Blood Pressure sensor was interfaced with the ARM Cortex LPC1768

The Complete Wireless Blood Pressure Monitoring Setup is shown in figure 2.3.

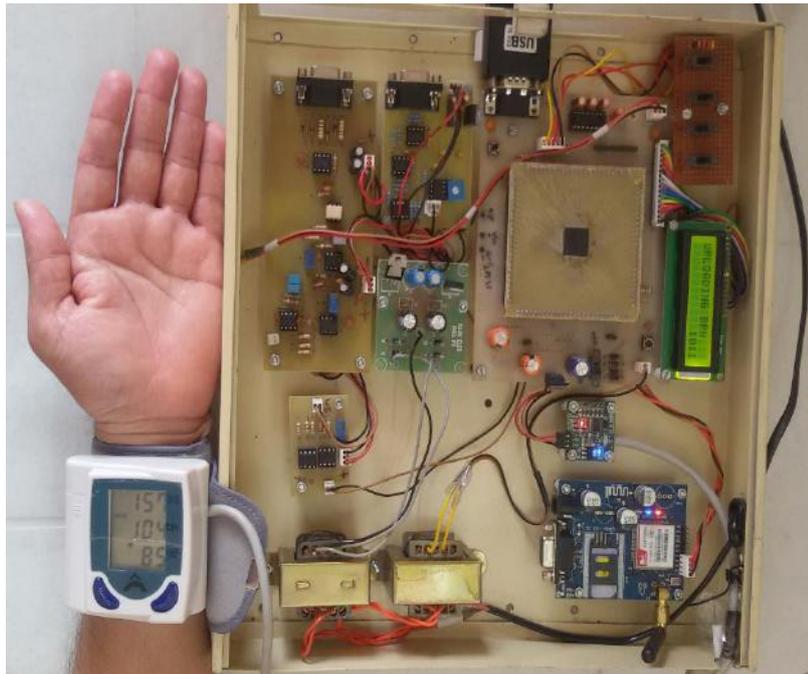


Figure 2.3: Complete Wireless Blood Pressure Monitoring

## 2.1 MICROCONTROLLER:

For this system we are using ARM Cortex M3 LPC1768 which is treated as heart of the system. This controller has an in built Analog to Digital Converter (ADC) for converting analog to digital converter operation. From microcontroller the digital samples are sent through UART to GPRS module. Programming of the microcontroller is finalised in embedded C language code. The ARM Cortex M3 LPC1768 processor is highly configured allowing a wide range of function from those requiring memory protection and powerful trace technology to cost sensitive devices requiring minimal area. LPC1768 has an in built 12-bit successive Approximation Analog to Digital Converter (ADC) which is involuted among 8 input pins. It has many features which are useful to us.

## 2.2 GPRS COMMUNICATION:

In this research paper we are using SIM900A for GPRS communication. SIM900A uses GPRS to transmit the data values (Systolic, Diastolic and Heart Rate) on remote server. The communication protocol between SIM900A and server is Hypertext Transfer Protocol (HTTP) [3 – 6]. We have used Hypertext Transfer Protocol (HTTP) post method for sending Blood Pressure data to server or cloud. Because of remote server the communication range is universal.

## 2.3 WEB APPLICATION:

The internet of Things (IOT) is the interconnection of mainly detectable embedded computing devices within the existing internet infrastructure. So Internet of Things (IOT) mostly is connecting embedded system to internet. The utmost standard protocol by far is the HTTP protocol, the protocol of the World Wide Web (Cuno Pfister, 2011). Hypertext Transfer Protocol (HTTP) defines how a client interacts with a server, by sending request messages and receiving response messages over Transmission Control Protocol/Internet Protocol (TCP/IP). Web page indicates selection of Blood Pressure is shown in figure 2.3.

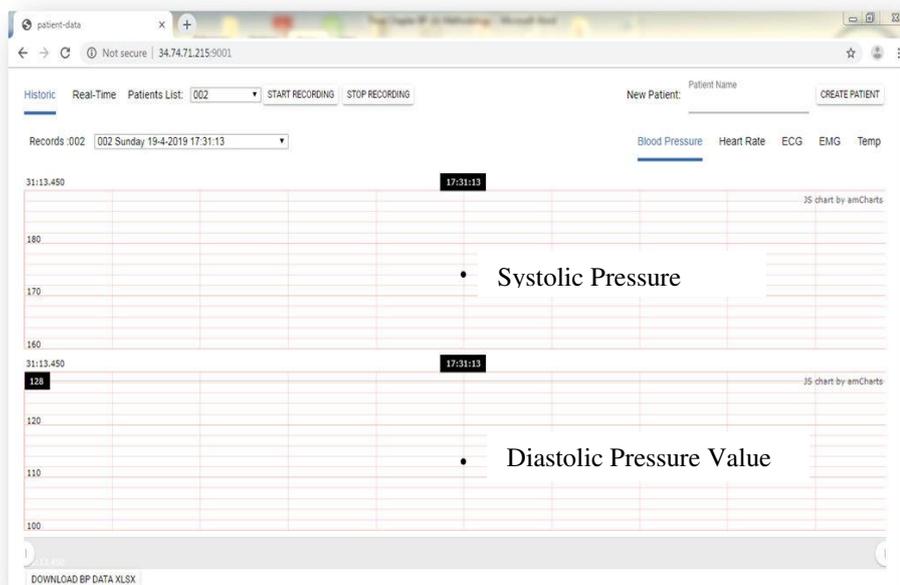


Figure 2.4: Web Page Indicating Systolic and Diastolic Blood Pressure

The Blood pressure is recorded as two numbers-as the systolic pressure (as the heart beats) over the diastolic pressure (as the heart relaxes between the beats).The unit which measures these two parameters is called sphygmomanometer. The Web Page Indicating Systolic and Diastolic Blood Pressure Values are shown in figure 2.4. Typical readings are like below where the three values are separated one after the other column wise.

Systolic: 174 mm Hg  
Diastolic: 113 mm Hg  
Pulse rate: 86 bpm

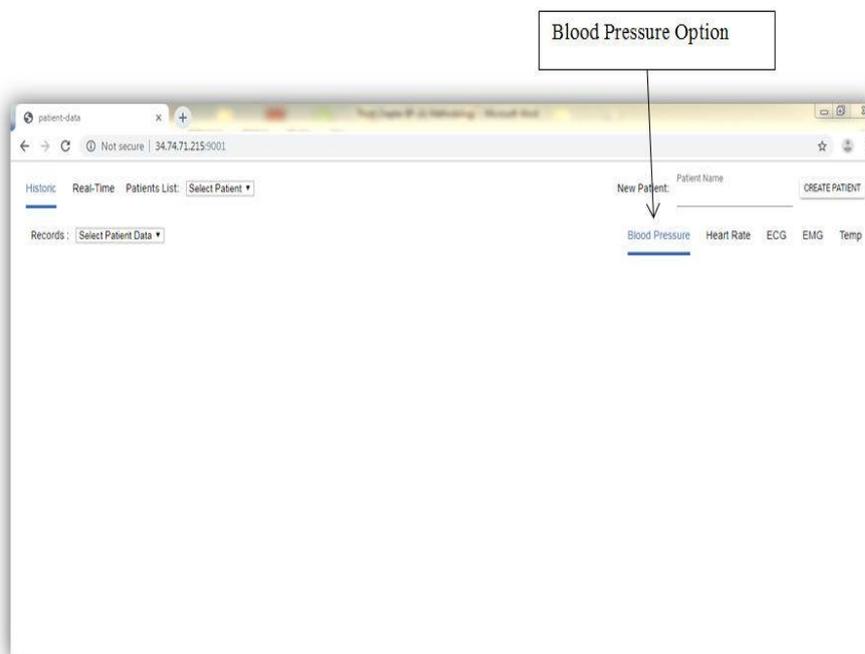


Figure 2.3: Web Page indicates selection of Blood

The Blood Pressure values are saved in an Ms-Excel file is shown in figure 2.5.



## REFERENCES:

- [1] Green BB, Cook AJ, Ralston JD, et al. “Effectiveness of home blood pressure monitoring, Web communication, and pharmacist care on hypertension control: a randomized controlled trial”, *JAMA*, Vol. 302, No. 18 (2009), pp 2857-2867
- [2] George S. Stergiou MD. et al, “Home blood pressure monitoring in the 21st century”, *The Journal of Clinical Hypertension*, Vol. 20, No 7, pp 12 – 24
- [3] Parati G, Stergiou GS, Asmar R, et al. “European Society of Hypertension practice guidelines for home blood pressure monitoring”, *J Hum Hypertens*, Vol. 24, No. 3, 2010, PP 779-785
- [4] Stergiou GS, Bliziotis IA. “Home blood pressure monitoring in the diagnosis and treatment of hypertension: a systematic review”, *Am J Hypertens.*, Vol 24, No. 2, pp 123- 134, 2011
- [5] Mancia G, Facchetti R, Bombelli M, et al., “Long-term risk of mortality associated with selective and combined elevation in office, home, and ambulatory blood pressure”, *Hypertension*, Vol. 47, No. 5, pp 846- 853, 2006
- [6] Stergiou GS, Asayama K, Thijs L, et al. “Prognosis of white-coat and masked hypertension: International Database of HOme blood pressure in relation to Cardiovascular Outcome”, *Hypertension*, Vol. 63, No. 4, pp 675-682, 2014

# STUDY OF HOPPING LENGTH VARIATION WITH ZINC CONTENT AND EFFECT OF GAMMA RADIATION ON CO-ZN SPINEL FERRITE SYSTEM

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## ABSTRACT:

The zinc substituted cobalt was synthesized by ceramic method. Polycrystalline samples of spinel ferrite having the generic formula  $Co_{1-x}Zn_xFe_2O_4$  with  $x = (0.0, 0.2, 0.4, 0.6, 0.8, 1.0)$  were prepared using the standard ceramic technique. The synthesized samples were annealed at  $900\text{ }^\circ\text{C}$  for 12 h. X-ray diffraction data were used to evaluate the structure of the prepared samples. Hopping length ( $L$ ) and other parameters were calculated.

**Keywords:** ferrite, gamma radiation, hopping length.

## 1. INTRODUCTION:

Among the several spinel ferrites, cobalt ferrite is a promising material for the production of permanent magnet for recording media, magnetic fuse and catalyst. Co –Zn ferrite are important in the field of microwave industries. Their usage is influenced by their physical and chemical properties which is intern influenced by gamma radiation. The polycrystalline ferrites which have high electrical resistivity and low eddy current losses are used as a high frequency transformer, memory cores, recording heads and variety of devices. The physical and electrical properties depend on the preparation technique and the type of substitution. The electron exchange interaction  $Fe^{2+} \leftrightarrow Fe^{3+}$  results in a local displacement of electron during the sintering of ferrite [1]. In certain materials, a permanent change may be produce by radiation damage to the crystal [2]. In these materials the change is a function of the total dose absorbed in the material. Various techniques are used to cause radiation damage in the material. Gamma radiation effect is one of them.

During last two decades the swift heavy ion irradiation in magnetic oxide and ferrite has been of a great interest to understand the damage structure, modification and their properties [3, 4]. The effect of gamma radiation on the physical properties of spinel ferrite has been the subject of interest for scientist [5, 6]. On radiating the material with gamma rays, ionization of the material takes place and the stored energy of the material increases.

### 1.1 EXPERIMENTAL PROCEDURE:

Polycrystalline samples of spinel ferrite having the generic formula  $Co_{1-x}Zn_xFe_2O_4$  with  $x = (0.0, 0.2, 0.4, 0.6, 0.8, 1.0)$  were prepared using the standard ceramic technique. The pure oxides (CoO, ZnO and  $Fe_2O_3$ ) of 99.9% purity were used. The powders were mixed in stoichiometric proportion and ground in an agate mortar pestle to obtain a very fine powder. The powder was then sintered at  $900\text{ }^\circ\text{C}$  for 12 hrs. These pellets are finely sintered to  $1100\text{ }^\circ\text{C}$  for 24 hrs and then cooled to room temperature for 24 hrs. Finally the samples were polished to obtain disc with two uniform parallel surfaces.

The powder X-ray diffractograms were obtained by using Phillips X-ray diffractometer model 3710 in the  $2\theta$  range of  $20^\circ$  to  $80^\circ$  at room temperature. The samples of Co-Zn ferrite were radiated with gamma rays using  $Co^{60}$  source. The source used in the present study is a commercially available laboratory source provided by Nucleonix systems (P) Ltd. Hyderabad. All the structural, electrical and magnetic properties were investigated before and after gamma radiation.

## 2. LITERATURE:

In the literature, effect of laser radiation on the properties of Co –Zn ferrite is reported [7]. Similarly effect of gamma radiation on structural properties of Co-Zn spinel ferrite has been reported. In the present work we report our results on the structural properties of Co-Zn spinel ferrite prepared by ceramic technique before and after radiation by gamma rays.

## 3. ANALYSIS: Hopping Length

The distance between magnetic ions is hopping length. Hopping length at tetrahedral (A) site and octahedral [B] site were calculated using the relation (1) and (2). The variation of hopping length and effect of gamma radiation on it is shown in Fig. 1. It can be seen from the figures that both  $L_A$  and  $L_B$  increases with zinc composition 'x' and further it can be seen that hopping length decreases after radiation. This may be due to the fact that lattice constant decreases after radiating the sample by gamma rays.

$$L_A = \frac{a\sqrt{3}}{4} \dots\dots\dots(1)$$

$$L_B = \frac{a\sqrt{2}}{4} \dots\dots\dots(2)$$

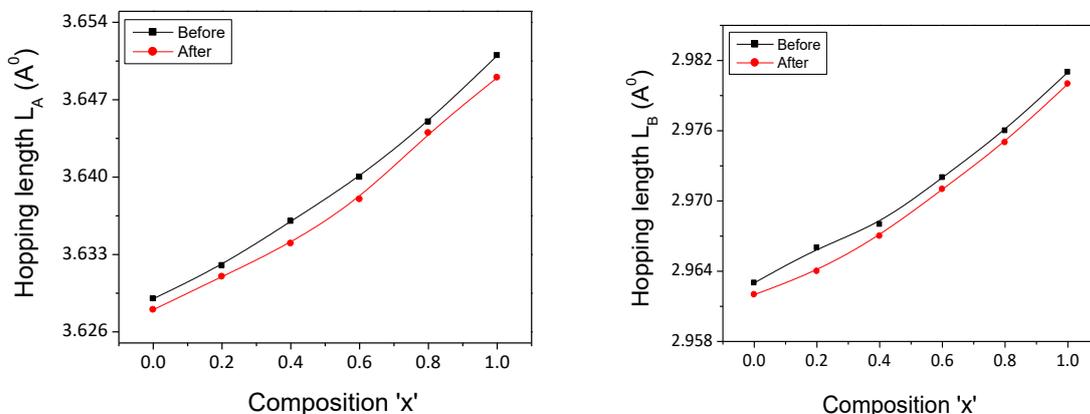


Fig. 1: Variation of hopping length ( $L_A$ ) and ( $L_B$ ) with composition for  $Co_{1-x}Zn_xFe_2O_4$

**4. DISCUSSION:**

Cobalt ferrite is an inverse ferrite in which cobalt ion occupy octahedral [B] sites where as Fe<sup>3+</sup> ions are distributed equally into tetrahedral (A) and octahedral [B] site. Interaction of radiant energy with matter is extremely important from the theory and application point of view.

**5. RESULT:**

Since hopping length depends on the lattice constant, we observed the change in the hopping length before and after radiation. As lattice constant increases the hopping length also increases with Zn substitution.

The change in the structural properties after gamma irradiation of presently investigated samples is because that after irradiation, the stored energy of material increases and then it is released at the defects which are already exist. This results in decrease in the number of defects consequently the structural properties like lattice constant, X-ray density, particle size decreases.

**REFERENCE:**

1. I.M. Hemed, *J. Magn. Magn. Mater.* 271 (2004) 318.
2. O.M. Hemed, M.El-Sadwaay, *J. Magn. Magn. Mater.*256 (2003) 63.
3. Anjana Dogra, M. Singh, V.V.Siva Kumar, N.Kumar, Ravi Kumar, *NIMB* 212 (2003) 184.
4. S. Ghosh, A. Gupta, P. Ayyub, N. Kumar, S. A. Khan, D. Banerjee, R. Bhattacharya, *NIMB* 225 (2004) 310.
5. M.A. Mousa, M.A. Ahmed, *J. Mater. Sci.* 23 (1988) 3083.
6. A.A.El-Bellihi, T.Farid,M.Z.Aomran,M.A.Mousa, *J.Radio Anal.Nucl.Chem., Letters* 154(4) (1991) 285.
7. A.Tawfik, I.M.Hamada, O.M.Hemeda, *J. Magn.Magn.Mater.* 250 (2002) 77.

## A BRIEF STUDY OF INTERNET OF THINGS (IOT) FOR COMMERCE

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### **ABSTRACT:**

*The main use of Internet is E commerce, which is a common arrangement of data service. Since the lifestyle of the consumers is changing and becoming more adaptive to online shopping, it has becoming pivotal for the experts in this industry to hold and update the technologies to provide services that can lead to customer fulfilment. In data technology, IoT is the new revolution after internet and mobile network. IoT enabled devices uses internet to exchange information with each other subsequently, helping retail and e commerce businesses to efficiently carry on their operations. In this examination the uses of IoT in e commerce businesses has been discussed. Likewise, this paper explains the manner by which the Internet of Things can be is integrated with E Commerce. IoT devices will help e-commerce businesses streamline their operations. In broader terms, IoT refers to the connection of devices with internet so those devices can exchange information inside themselves. It obscures the hole between physical world and computer-based systems resulting in improved efficiency, precision and economic benefit. IoT with its stunning efficiency and straightforwardness has augmented the development of e commerce sector and has affected great many lives. IoT is driving development and new opportunities by bringing every object, consumer and movement into the advanced realm. The leading businesses are rolling out comparable improvements inside their enterprises by digitizing every employee, process, item and service. The back end of business management has seen the greatest effect from IoT. Internet connected devices have definitely improved the entire production network process from inventory management to delivery. This technology permits inventory management to happen in real time reducing person-hours all while giving more accurate data. The development of connected devices coupled with improved, less-expensive technology stages furthermore, selection of normal principles would increase the fast development of IoT-enabled capabilities across industries.*

### **1. INTRODUCTION:**

The development of IoT enabled services in e-commerce. The key technical issues of Things development, e-commerce security measures and setup structures have been discussed in this paper. The paper concluded that the IoT technology is as yet in early stage and it isn't mature. So it requires long haul centre and improvement in IoT technology. The creator listed out certain areas where the telecom operators and system integrators should work.

1. The sensor and real time correspondence network should be strengthened. The distributed computing services should be accelerated in areas, for example, finance, online payment, fabricating industry etc.
2. There must be an improvement in network security, system dependability and information protection. A security should be assembled stronger since all the exchanges would take place through internet.
3. The IoT technology and industry arrangement programs need to be developed in related-gathering of e-commerce industry chain.

The E-commerce coordinations in store network management from a practice perspective. Due to the quick development and large influence of E-commerce, coordinations have been greatly changed compared with several decades prior. This paper highlighted the coordinations models and supporting techniques which have improved the Ecommerce coordinations altogether. Worldwide implementations, for example, North America, Europe, and Asia Pacific are reported. Regular e-commerce companies have been reviewed in this paper expecting to get the opportunities and future perspectives which might be used for managing practitioners and academia when contemplating Ecommerce coordinations and production network management in the near future. For the practice view of E-commerce coordinations, the IT technology plays an essential role in improving the efficiency and effectiveness of store network management. Future technologies like Internet of Things (IoT), Big Data Analytics, and Cloud Computing would be perhaps adopted to enhance the Ecommerce coordinations in terms of system level, operational level, and decision-production level that might be real-time and intelligent in the next decade.

An architecture for IoT enabled e-commerce services. It consisted on three layers namely perception layer, network layer and service layer. The creators described the working of IoT in e-commerce.

### **2. BENEFITS OF IOT IN E-COMMERCE:**

IoT enabled devices uses internet to exchange information with each other, helping retail and e-commerce businesses to convey out their operations effectively. By 2020 the retail spend on the Internet of Things is expected to reach \$2.5 billion. More than 70% of the retailers are ready to embrace the Internet of Things to improve their consumer

experiences worldwide. The IoT movement offers e-commerce businesses and retailers opportunities in the accompanying basic areas:

Inventory management, coordinations, customer experience, marketing opportunities, the production network, and new channels also, revenue streams.

### **3. INVENTORY MANAGEMENT:**

IoT devices will help ecommerce businesses streamline their operations. For example, the following and treatment of inventory will become easier with the movements of connected items now traceable in real time. Such information can be used to tell business owners of low and sluggish stock. With the help of IoT, it becomes easy to keep track of inventory. IoT sensors and RFID labels make management of inventory in real-time possible, streamlining the entire stream. They improve the observing and following of inventory items, reducing human errors in reordering items. Data like item type, manufacturer's name, the expiry date of the items and their cluster IDs can be consequently stored in the system without human intervention. Brilliant shelves are useful in reducing customer disappointment due to out of the stock items. They can follow the number of items that have been sold and can place programmed orders when the stock reaches reorder level. IoT not just helps in enhancing inventory and reducing shortage yet additionally eliminating over-load of items in the warehouses. Temperature-checking sensors can be used to check the ideal temperature for perishable items and send alerts whenever needed. There can likewise be sensors that examine the forklifts in the warehouse for predictive maintenance to reduce the deficiency of efficiency.

### **4. LOGISTICS:**

By integrating IoT with e-commerce coordinations, following stock in the warehouse or customers and their interest rundown can be made easier. Radio Frequency Identification (RFID) and Global Positioning System (GPS) technologies permit following every stage of an item's journey, reporting how quick it's traveling, who the driver is, or even the weather. This data can be used to automate a large part of the transportation process, and ensure there are no missing shipments or unforeseen delays. Here IoT technology can be used to enhance the customer experience by refreshing the delivery status of the item they have purchased like sending automated messages educating customers regarding the status of their package. For example, a text will be sent to the customer a couple of days before the item will arrive, and afterward another couple of hours before, so they won't have to stress over missing the delivery. The sensors can be included by the needs. A supermarket delivering frozen products should include temperature sensors to ensure the package is remaining cool, and to alert the driver to take activity if it's getting excessively warm. IoT ensures the smooth and ceaseless stream of merchandise starting with one area then onto the next as the success of any e-commerce business relies on seamless and uninterrupted store network management. IoT permits following of items from their creation until utilization. With IoT-enabled detectors, retailers can easily manage the route and speed of their shipped items as well. Radio frequency identification (RFID) and GPS techniques help merchants recognize an item on the way and deliver specific data about its area, temperature and significantly more.

### **5. CUSTOMER EXPERIENCE:**

The Internet of Things connects ecommerce businesses with customers like never before. For example, guarantee and breakdown information can be consequently sent back to retailers to ensure a quick response - sometimes before the user is even aware a problem exists. Every experience is becoming an advanced experience and these experiences are combined together called the "Internet of Me," which describes an interconnected environment wherein businesses are building items and services to be designed for, created for, and specifically centred on the person. IoT enables ecommerce businesses to differentiate themselves from their competitors before their clients. For example, Walmart uses IoT to get experiences about the items which are famous via online media. This innovative technology permits retailers to deliver a comprehensive shopping experience to customers with an elevated level of personalization, leading to clients' fulfilment and engagement. The area based beacon technology permits retailers to interact directly with customers as they enter the online store. IoT can help in personalized advertising for e-commerce businesses to target a specific gathering of customers. It can recognize shopping patterns in search trends and online perusing, enabling businesses to sell targeted items to their customers. IoT will permit fitting items, services and offers to customers' choice. With more information available to marketers about consumer behaviour, it will become possible to pull in customers and influence their purchase decisions. IoT likewise improves customer service, helping report issues even before they are noticed. This helps the businesses to smoothen the customer experience by envisioning possible protests, leading to easy and provokes resolution. A customer may search from the rundown of items provided in the e-commerce sites and they can purchase their favourites. Every customer has certain shopping pattern base on what they are glancing in the sites. On concentrating such shopping patterns of a customer by means of search trends and online perusing, IoT helps vendors sell targeted merchandise to their customers. By that way sellers can zero in on the needs and requirements of

their customers in a better manner. IoT devices enable the retailers to collect consumer information including their propensities and behaviours. On average, a retailer employing IoT technology may be able to aggregate a higher measure of consumer information than their competitors, and they can use that information to engage with their customers. Retailers aren't limited to mining information from their own customers. Walmart has already begun implementing IoT technology to analyse online media information, and see what items are trending. With that data, they can effectively market to specific segments of their customer base. The retailer knows the shopping histories, propensities, and preferences of their customers and can create marketing efforts at nearly the individual level.

#### **6. SUPPLY CHAIN MANAGEMENT:**

An interrupted and efficient production network management is significant to carry on operations of e-commerce businesses successfully. IoT ensures that products move starting with one place then onto the next easily. It enables following of merchandise directly from the creation stage to delivery. The "Modern Internet" describes how companies are utilizing cloud, mobile, enormous information and other technologies to improve operational efficiencies and foster advancement. It has been estimated that by 2030, the mix of the Industrial Internet and IoT devices could add more than \$14 trillion to the worldwide economy. Information can be sent directly from the items to the retailer, helping to identify issues or glitches perhaps before the customer is even aware of them. Information perception technologies help the employees to follow items over the store network rapidly. These information perception technologies can even be extended to customers permitting them to follow the items they have purchased, for example, where a custom order is in the creation and conveyance process. This technology even permits the managers to change valuing in real time, utilizing Internet enabled shrewd labels to lower prices on limited time or low turnover items or increase valuing on higher demand items. A completely integrated valuing system would be developed and this helps retailers to improve synchronization of prices between the shelves and the registers and furthermore across channels, to verify prices are consistent between online and physical stores. The production network can be integrated with other IoT devices which further improve store operations and help reduce cost. Since sensors are used to automate a significant number of the capacities, for example, following inventory or changing prices on individual items, it gives sales associates more time to spend interacting with customers further improving the in-store experience.

#### **7. MARKETING:**

There are numerous surveys that profess the importance of mobile phones to the buying process. However, as long as mobile sites don't deliver what user needs, obviously the vast majority would go to their fundamental computer to make any last decisions. The Internet of Things detect devices that belong to the same individual, permitting to market to the individual rather than the device, while as yet offering the correct promotions for the stage. Truth be told, customer information is one of the core uses of IoT for e-commerce improving everything from personalization to segmentation. The prevalence of IoT devices in society enables businesses to pick up a greater understanding into their customers' behaviour than any time in recent memory. The day by day routines of target demographics, their shopping histories, item preferences and purchasing propensities would all be able to be tracked and used to tailor more relevant marketing efforts. This is the reason, as consumers, we're beginning to see an increased measure of 'personalized' advertising sent our direction. IoT devices contain all the data of its customers. These devices can likewise provide GPS areas in case of misfortune or theft. General Electric is most likely the best example of an organization completely using this technology to the benefit of both them and their customers. They have a complete suite of "savvy" appliances.

#### **8. REVENUE STREAMS:**

The true power of the Internet of Things is that it creates opportunities for retailers to develop new revenue streams or, in some cases, assemble entirely new channels. Home appliances, cosmetics, home and vehicle security, apparel, comfort items, even health and wellness items are largely becoming piece of the Internet of Things ecosystem. Retailers in home improvement or consumer electronics sectors not exclusively can drive more sales of these connected devices. Home Depot already stocks more than 600 "keen" items in its stores. By becoming an integration stage, retailers start exploiting the wide exhibit of connected items.

#### **9. DYNAMIC PRICING:**

Before IoT started to get on, out valuing the competition meant continually checking their advancements and marketing strategies, developing counter-missions and utilizing every strategy in your arsenal to cause to notice your image as the better choice. Businesses currently have the choice to skirt this tedious process and beat the competition from moment to moment by utilizing dynamic evaluating models. Instead of thinking of a future sale to outshine your competitors, dynamic valuing with IoT permits you to update the prices on your e-commerce stage and even in your block and mortar stores in real time to ensure you're continually offering the best deals and giving a unified experience

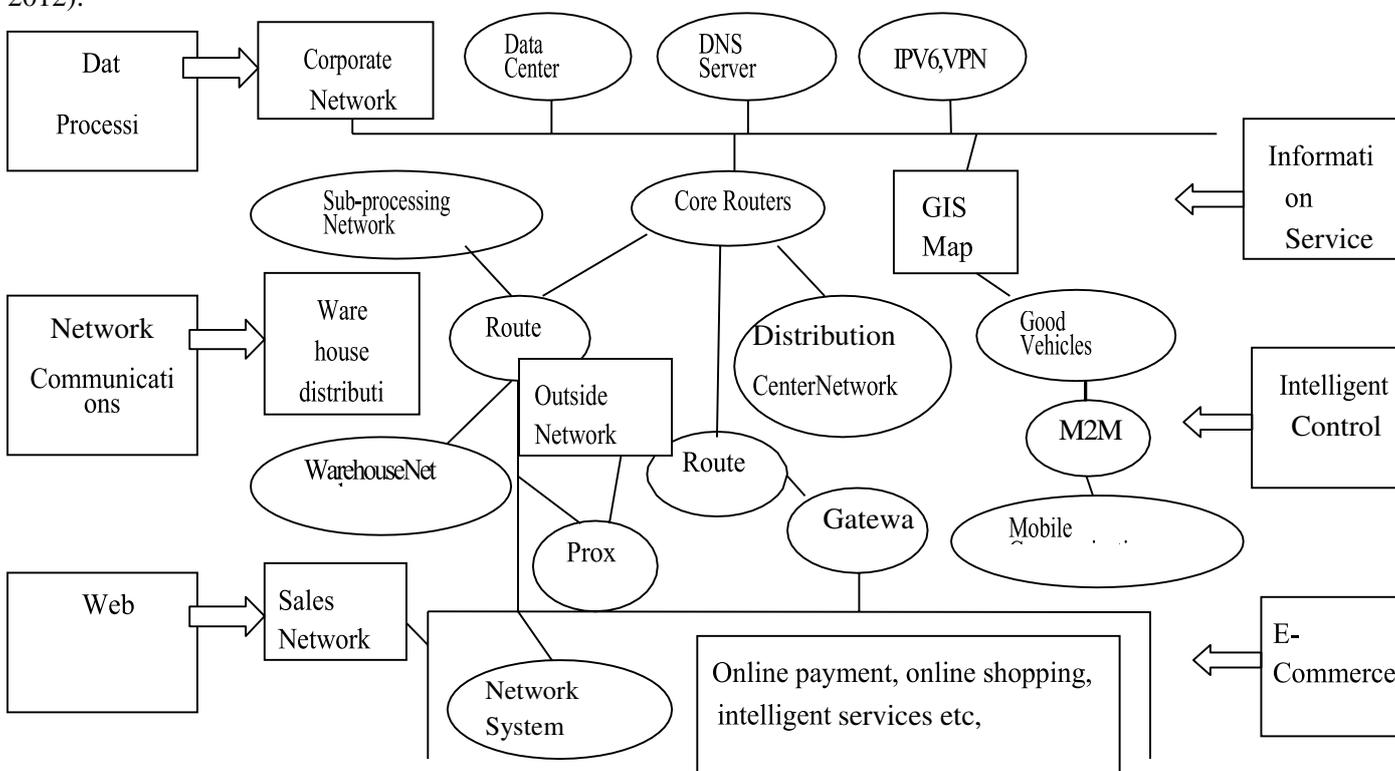
over stages. Dynamic estimating can likewise communicate greater value by responding to demand and setting prices to reflect what consumers will pay for the perceived worth of an item or service.

**10. PROMOTIONS:**

Flexibility in valuing likewise extends to the individual customer experience. The present IoT technologies include "savvy" shelf labels, likewise called "e-labels," installed in stores to provide targeted advancements to customers based on their past purchasing propensities. Utilizing information regarding what a customer has purchased both in-store and online, these labels use location based signs to illuminate and stand out to items the individual is well on the way to need to purchase. Your business can use "keen" technology to deliver special advancements through pop-up messages. Purchases from those customers both in store and online can be more easily tracked. With a clearer picture of customer behaviour, it's easier than any time in recent memory to deliver the smooth Omni channel experience consumers desire.

**11. IOT IMPLEMENTATION FOR E COMMERCE:**

The future of e-commerce will be towards the development of diversification and convenient, the competition will become more intense. On the off chance that IoT technology is used in different aspects of e commerce, then the efficiency of it will be increased for a greater extent. Its operating costs will be reduced, customer experience will be improved. IoT is combined with e-commerce and a new IoT e-commerce system has been formulated (Han and Li, 2012).



**Figure: IoT e-Commerce System**

**12. CONCLUSION:**

The IoT technology will expand definitely over the next few years with an estimated 30 billion IoT devices in use by 2020. This development will have a tremendous effect on e-commerce retailers and online shoppers. In the event that IoT technology has been utilized in businesses, it will result in massive benefits for both their customers and their base line. For developers and designers, the fundamental essence of work lies in advancement. Without advancement, there is no existence in an industry that develops changes, structures, and reforms faster than some other. A great user experience is essential for ecommerce websites, yet in the near future, when the IoT becomes even more prevalent, web developers should chip away at approaches to harness the increased information on offer. This will eventually lead to more intelligent, perceptive websites which are capable of offering personalized perusing experiences.

## REFERENCES:

1. Xiaoming Xu, "IOT Technology Research in E-Commerce", Information Technology Journal, 13(16), 2014.
2. Ying Yu, Xin Wang, Ray Y.Zhong, George Q.Huang "E-Commerce Logistics in Supply chain Management: Practice Perspective", Science Direct, 2016.
3. Xiaopu Shang, Runtong Zhang, Ying Chen, "Internet of Things (IoT) Service: Architecture and its application in E-Commerce", Journal of Electronic Commerce in Organizations (JECO), 2012.
4. Internet of Things by V.Dinesh, P.Deepika, S.Prabhu
5. Deng, J., Q.Li and Y.Z. Lin, "RFID technology application in the warehouse management of the internet of things" Discovering Value, 15:128-130, 2014.
6. Han J. and Z.P Li, "Constructing logistics e-commerce platform based on internet of things", Value Eng., 31:10-14, 2008.

# A CRITICAL REVIEW ON INTERNET OF THINGS

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## ABSTRACT:

Nowadays heterogeneous gadgets are associated together by means of web. Endless administrations can be benefited and started from the hand held gadgets. You can book tickets, banking, check the traffic, clear your contribution, get declarations from the region and so forth. Due to heterogeneity nature of gadgets there are numerous issues in IoT like coordination and control, information the board, versatility, interoperability, security. In IoT many (detecting) gadgets continue recording and sending the information to control space for investigation and dynamic. This paper lets you feel what IoT is and what are its fundamental issues and difficulties.

## 1. INTRODUCTION:

The web of things is a sort of organization which is made by the various gadgets performing separate assignments for some normal purposes. These gadgets (sensors) might be camera introduced at different areas in the city to screen the city traffic, metrological office, municipal offices, banks, different sensors, individuals, and cell phones, traffic police, city offices and so on. These gadgets perform omnipresent and unavoidable figuring. Anyway there is no single meaning of IoT.

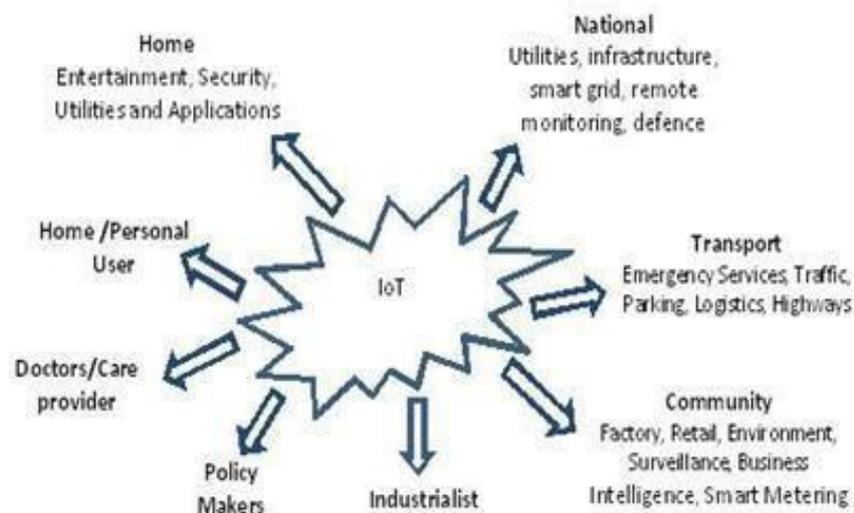


Figure 1: IoT overview

A few associations (CCSA, ITU-T, EU FP7 CASAGRAS, IETF and so on) have given their definitions. The uncontrolled climate (versatility, availability, and trust), heterogeneity, adaptability, portable, variety, closeness, relationship horde, un-attendedness and restricted asset power are the far reaching observation, solid transmission, and clever preparing are a portion of the properties or highlights or attributes of the IoT. The primary errands which are acted in IoT are object distinguishing proof, setting off an activity, object detecting, and ID of articles:

## 2. IOT TECHNOLOGIES:

The accompanying fixings are needed to convey the IoT based gadgets:

- RFID (Radio Frequency Identification): This is one of the principle constituents of IoT and it is little chip [5] like cement sticker which gets too communicates the signs. RFID include per user and labels. It lets us permit direct programmed recognizable proof and date catching utilizing radio waves, tag, and peruses. FRID labels can inactive or dynamic contingent upon if power supply is accessible. They uphold detecting, correspondence, and calculation in inactive frameworks.
- WSN (Wireless Sensor Networks): This is organization of spatially circulated self-governing sensors. Their job is to give the following the status of the area, temperature, development and so on of the RFID objects. Detecting hubs of a sensor network send information to their sinks.
- Middleware: A product layer created to conceal the various advances' unpredictability and it makes correspondence easier. It engineering prosed is service oriented architecture (SOA).

- Cloud Computing and Fog Computing for IoT: It is a registering model for getting to the pool of assets on interest. The asset might be PCs, organizations, workers, stockpiles, applications, administrations, programming and so forth with deference of IoT distributed computing has numerous issues like synchronization, normalization, adjusting, unwavering quality, and the executives. With the assistance of mist calculation the expansion of distributed computing administrations to the vicinity of the clients with better execution. Mist calculation has the vault of the highlights, for example, area, appropriation, versatility, portability uphold, ongoing intelligent administrations, normalization, and on the fly examination.
- IoT Application Software: Software to build up the different business arranged applications. It gives all offices for the equivalent.

### 3. EVOLUTION OF IOT TECHNOLOGIES:

The improvement of IoT advancements for example RFID, WSN, Smart things, Network, Software and calculations, Hardware, Data handling and so forth , have a range of time and the equivalent can be sum up as: 1.3 Enabling Technologies

- Identification and Tracking: RFID as a result of the ability of RFID can be utilized in item following. There are some identified with it for example impact, obstructions, security insurance, guidelines, and reconciliation.
- Integration of WSN and RFID: Integration of numerous advances like WSN, Communication, Networks, RFID and so forth make IoT more helpful to the business, medical services, dynamic, savvy city or shrewd restoration centre frameworks.
- Communications: Different gadgets of various detail impart through organization.
- Networks: different remote lattice organizations, impromptu organizations, or cross layer protocols for remote organizations exist.
- Service Management: To meet the necessities of the clients, the board for usage of administrations is required.
- Security and Privacy: fundamental for secrecy, confirmation and accessibility of condition of workmanship administrations.

Technology	Time Span	Description
RFID	1999 ~	Passive identification, wireless networks
WSN	2005 ~	WSN, Cloud computing, Web2.0, low energy communication
Smart Things	2012 ~	Mobile computing, cooperating operations of objects, connecting devices
IoT	2017 ~	Advanced sensor fusion, faster wireless connectivity, predictive analysis

### 4. STANDARDS :

Normalization of interface and middleware are significant. Zero in is presently on planning approaches and appropriated engineering, guaranteeing the security and insurance of clients, acknowledgment of trust, worthiness, and security of organization, improvement of guidelines, and investigating the new empowering innovations for example miniature electronic-mechanical framework (MEMS) gadgets and omnipresent area. A portion of the primary guidelines are summed up underneath:

Technology	Standards
Communication	IEEE 802.15 for ZigBee, WLAN, Bluetooth, IEEE 1888, wireless body area network, 4G UWB IPv6, etc.
RFID	RFID tag ISO 11785, air interface protocol, mobile RFID payment, Smart card, etc.
Data Content and Encoding	EPC global electronic protocol code, global physical mark-up language, global object naming service
Electronic Product code	Auto-ID, serial shipping container code, global location number, global trade identification number etc.

### 5. IOT FRAMEWORK:

The IoT can be imagined as web driven and things driven a system that consolidates the universal detecting gadgets and applications structure is more adaptable and versatile as it uses the entire intensity of distributed computing. As can be seen in underneath figure cloud converges to let us get versatile capacity apparatuses and calculation time.

This can be utilized in wellbeing, observation of objects to follow the course, to screen the climate to ensure that that the amount it is polluted and how might it be re-established. In transportation new courses can be distinguished to decongest the city for agreeable excursion. On cloud things can be recruited and accordingly there is no compelling reason to put resources into owing equipment, stage, and administrations. It tends to be paid for what we have utilized it. Remote sensor network interfaces different sensors which sense, gather and move data to their control spaces for additional investigating the information for expectation.

## 6. ARCHITECTURE OF IOT:

The layered engineering in setting of IoT has five layers named business, application, centre, organization, and observation layers as appeared in figure 2:

- Business Layer: It gets the data from the application layer. This layer for breaking down the data may assemble the plan of action, use stream diagrams, charts and so on It likewise chooses the achievement rate and tentative arrangements of the business. This deals with a wide range of such assignments.
- Application Layer: This does the general item model based on data got from the centre product. The applications can be savvy wellbeing, city, keen vehicle, and military and social locales' activities.

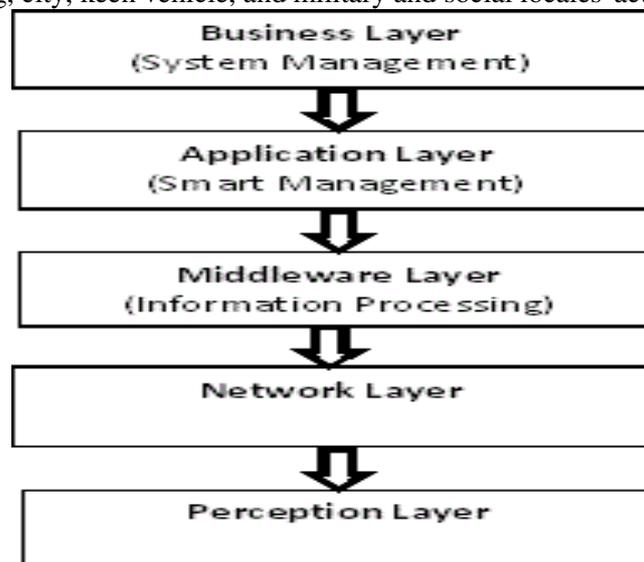


Figure 2: IoT Architecture

## 7. CHALLENGES IN IOT DEVELOPMENTS:

A portion of the open issues are principles, portability uphold, transport protocols traffic portrayal and QoS uphold, information uprightness, security, tending to and networking ,and advanced failing to remember:

- Data Management Challenges: IoT gadgets assemble information from different gadgets for preparing and putting away. This information may in heterogeneous structure and taking care of should be overseen in fitting way without hampering of the date and without making the check the working of different gadgets.
- Data Mining Challenges: Since information is gigantic so particular mining instruments might be needed for examination.
- Privacy Challenges: during the activity security should be kept up. Once in a while some close to home data about any individual is to be moved, and afterward it should be kept classified.
- Security Challenges: as number of gadgets expands the, a few dangers and dangers of sending right information, additionally increment. Article recognizable proof, validation and approval are likewise difficulties.
- Chaos Challenges: parcel of gadgets are associated and they impart each other for sharing the data. It might cause gridlock and wastage of channel data transmission. So clog control and appropriate directing should be utilized.
- Energy proficient detecting: productive strategies to detect, gather, and screen the heterogeneous information gathered from different detecting sensors.
- Architecture: Architecture which can meet and deal with necessity should be created.
- Quality of Service: These organizations offer different types of assistance consequently their deferral, data transfer capacity, versatile traffic, throughput, examining rates, clamour should not be corrupted.

- New Protocols: Protocols are the foundation of the IoT at numerous levels for different administrations. So energy proficient protocols should be planned at Mac layer and for steering. Customary MAC, TDMA, CSMA, FDMA and so on protocols are not straightforwardly material to IoT.
- GIS based Visualization: the 3D representation methods are required rather LCD, LED, CRT and so forth
- Cloud Computing: Integrated IoT and cloud applications are establishing appealing climate to offer different types of assistance, stage, and administrations to various stack holders.
- International Activities: It is getting the prevalence everywhere on the world over all areas of the general public, industry, the scholarly community and so on

## 8. IOT SECURITY:

There is part of weaknesses in IoT on account of its tendency of organization. The security expects strength to the assaults, access control, information verification, and customer protection. Some protection upgrading measures for example virtual private organization, transport layer security, onion directing, DNS security augmentations, , and private data recovery and some state guideline and lawful strategy are proposed. Since more often than not its IoT gadgets are kept unattended (actual security is required), correspondence is remote, and its gadgets has restricted assets, consequently complex measures are hard to be upheld:

- Object Identification and Locating in IoT: for remarkable distinguishing proof of articles in the IoT network there is required ONS (object network system) like the DNS is required. The name data networking (NDN) and FIA (Future Internet Architecture) are proposed.
- Data uprightness and Authentication Authorization in IoT: Messages should be unrestricted and seen by the planned.
- Privacy, trust, and information classification: Behaviour of client while he was associated with IoT network is gathered to guarantee that he was a steering client or another person. Absence of verification, transport security, access control, shaky programming and so on
- Light Weight Crypto frameworks and Security Protocols: different assets including valuable information is accessible for sharing and further handling. Thus such significant assets are ensured by cryptosystem and proper protocols should be set down for the equivalent.
- Software Vulnerability and Backdoor Analysis: there could be numerous shortcoming and abuse or penetrates into framework security. These penetrated should be fixed so entrance can be evaded.
- Malware: There are undesirable projects basically composed for hurting or knowing the designs for business adversaries. They now and again devour our framework assets and at some point crash or degenerate the equipment parts of our framework. A decent quality enemy of infection, against spammer and so forth should be introduced to stop them.
- Android Platform: Most of the cell phones accessible today are Android stage based. Henceforth an ever increasing number of shrewd gadgets and keen applications are created to connect with these gadgets.

There are some security prerequisites of IoT; protection upgrading advances VP,. Aside from the prerequisites there are a few issues in security guidelines additionally; assurance of protection encroachments, nature of information and setting, distinguishing proof of straightforwardness and information limiting, interoperability and network. Interoperability is characterized as the opportunity to parts to cooperate and can change itself to fit in the ideal circumstance. They can be specialized and cross-space interoperability.

## 9. ASSAULTS AND VULNERABILITIES:

Various kinds of assaults at various layers like braid pass, sneaking around in close to home information, DoS, and pantomime, are primary treats to the security. These dangers and weakness can be constrained by utilizing cryptosystems, filtering, interruption identifications, and antiviruses, for example Diffie-Hellman, RSA, ECC, computerized mark, and Hash work and so forth strategies. Assaults are named dynamic or inactive and a portion of the treats of IoT are portrayed in beneath figure:

Man in the middle, snooping are of low to medium danger treats and assembling, protection, interference, impersonation and directing redirection are of high danger dangers, security dangers at various layers, and creation, DoS, and impeding are of very high danger dangers. A portion of the dangers and moderation are recorded beneath:

A. Security Mechanism A methodical and intellectual methodology [Sfar AR, Natalizio E, et. al.] is proposed tetradrone-based strategy which has four hubs individual, wise item, measure, and innovative eco framework. The smart items control the people, sensors, RFID labels, framework programming, PCs, correspondence protocols, and organization hardware. The associations interfacing with these hubs are dynamic and speak to the contention and co-activity between hubs. These edges speak to trust, unwavering quality, obligation, auto-invulnerability, wellbeing, and distinguishing proof and access control.

Category	Attack	Result	Solution
Gathering	Tampering, skimming, eavesdropping, analysis of traffic	Confidentiality divulging	Steganography and cryptosystems, CRC, MAC
Imitation	cloning, spoofing, replay,	Confidentiality divulging	Anti-virus, anti-jammer, firewall
Blocking	DoS, Malware, jamming	Confidentiality divulging	Data transmission, digital signature
privacy	Group and individual	Confidentiality divulging	Distortion, data disclosures, equivocation

**10. IOT APPLICATIONS:**

IoT might be utilized in vehicle and keen conditions area, coordinations space, wellbeing area, individual and social area, and modern applications space. They can be assembled into following classes:

- **Monitoring and Control:** it gathers the different information from different gadgets of their utilization for example utilization to control and screen the exhibition of the gadgets. They can detect and control the area of gadgets, armada the executives, traffic data framework, climate detecting, distant detecting, and far off clinical checking.
- **Big Data and Business Analytics:** IoT gadgets and machines are implanted along with sensors and actuators which subsequently produce huge measure of date. For a business prospect this immense information must be dissected for defining the new business objective satisfaction.
- **Information Sharing and Collaboration:** individuals can gather and send data through gadgets associated in Io organization. There can be joint effort between individuals and sensors.
- **Ad Hoc Networking:** They are self-coordinated networking capacity and work to offer the types of assistance.
- **Secure Communication:** It can make a protected channel to convey among articles and administration or IoT terminal dependent on assistance necessities.
- **Smart homes, medical care, and business the board.**

**11. CONCLUSION:**

This paper overviews the IoT principles, technology, models, and empowering advances of the IoT with unique consideration of security, protection, and trust perspectives. Different strategies and ways are depicted and examined based on significant boundaries. Treats, assaults and weaknesses of different levels are investigated.

**REFERENCES:**

1. In Lee, Kyoochun Lee,” the internet of things: applications, investments, and challenges for enterprizes”, business horizons (2015), 58, 431-440.
2. T. liu and D. Lu,” the applications and development of IoT”, in proc. Int. Symp. Inf. Technol, med Educ (ITME), 2012, vol.2, pp. 991-994.
3. Gubbi J, Buyya R, Marusic S, Palaniswami M. Internet of Things (IoT): A vision, architectural elements, and future directions. Future generation computer systems. 2013 Sep 1;29(7):1645-60.
4. Khan R, Khan SU, Zaheer R, Khan S. Future internet: the internet of things architecture, possible applications and key challenges. InFrontiers of Information Technology (FIT), 2012 10th International Conference on 2012 Dec 17 (pp. 257-260). IEEE.
5. Atzori L, Iera A, Morabito G. The internet of things: A survey. Computer networks. 2010 Oct 28;54(15):2787-805.
6. Shang W, Yu Y, Droms R, Zhang L. Challenges in IoT networking via TCP/IP architecture. Technical Report NDN-0038. NDN Project. 2016 Feb 10.
7. Sicari S, Rizzardi A, Grieco LA, Coen-Porisini A. Security, privacy and trust in Internet of Things: The road ahead. Computer networks. 2015 Jan 15; 76:146-64.
8. Roman R, Zhou J, Lopez J. On the features and challenges of security and privacy in distributed internet of things. Computer Networks. 2013 Jul 5; 57(10):2266-79.
9. Vasilomanolakis E, Daubert J, Luthra M, Gazis V, Wiesmaier A, Kikiras P. On the security and privacy of internet of things architectures and systems. InSecure Internet of Things (SIoT), 2015 International Workshop on 2015 Sep 21 (pp. 49-57). IEEE.
10. Internet Of Things by Taran Singh Bharati
11. Zhou W, Jia Y, Peng A, Zhang Y, Liu P. The Effect of IoT New Features on Security and Privacy: New Threats, Existing Solutions, and Challenges Yet to Be Solved. IEEE Internet of Things Journal. 2018 Jun 15.

# A STUDY OF APPLICATIONS OF ARTIFICIAL INTELLIGENCE IN BANKING AND FINANCE SECTOR

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## ABSTRACT:

*Artificial Intelligence (AI) is recklessly growing as the go-to technology for companies across the world to personalize experience for individuals. The technology itself is getting enhanced and smarter day-by-day, allowing more and newer industries to adopt the AI for various applications. Banking sector is becoming one of the first adopters of AI. And just like other segments, banks are exploring and implementing the technology in various ways.*

*The rudimentary applications of AI include bringing smarter chat-bots for customer service, personalizing services for individuals, and even placing an AI robot for self-service at banks. Beyond these basic applications, banks can implement the technology for bringing in more efficiency to their back-office and even reduce fraud and security risks.*

*This paper focuses on the application of Artificial Intelligence in the banking sector.*

**Keywords:** AI, Banking etc.

## 1. BACKGROUND:

The 2011 quiz competition called 'Jeopardy' in the US was unique. One of the 3 contestants was a different person. Surprisingly, the same 'person', won that prestigious competition. By the way, the other two players were not Lechepe. One of them had an unbroken tradition of being undefeated 72 times in a row, while the other had won the biggest prize ever. But the difference between the 'people' who loses these two giants is that he is not a human being, but a computer system. This system, called IBM Watson, defeated humans in its own competition. This phenomenon brought to light such an intelligent system used in computers, that is, the subject of artificial intelligence (AI) behind it.

If a computer system starts doing the work where human beings need special intelligence, it can be called 'artificial intelligence' (AI). Diagnosing scans like X-rays, translating, detecting fraud in many financial transactions, and playing chess are not easy. He needs great intelligence. The same work is now being done by such computer systems.

We live in the time where a lot of work is taken over by machines, software, and various automatic processes. In this regard, artificial intelligence has a special place in all the advancements made today. As the AI systems are used on a day-to-day basis in our life, it is not wrong to say that our lives have also become advanced with the use of this technology, like controlling the temperature of our room, getting answers for our doubts, for helping us to drive our car etc. AI powers product pricing on Amazon, movie recommendations on Netflix, predictive maintenance for machinery and fraud detection for your credit card. AI will do everything for you and as of now it is an added luxury to our lives.

## 2. OBJECTIVE OF THE STUDY:

- To understand the concept of Artificial Intelligence
- To know the applications of Artificial Intelligence in Banking Sector

## 3. REVIEW OF LITERATURE:

1. **Dr.C.Vijai** in his article explained that “how Artificial intelligence is changing business processes and customer-facing services in the banking sector in India. It is also being used to meet regulatory compliance, detect fraud, and assess individual creditworthiness. The application of AI has the potential to create more efficient business processes, offer personalized services, and assist in larger goals such as financial inclusion.”

2. **Margaret A. Boden** concluded in her research paper that some creative ideas have already been generated by AI-programs, though usually by merely exploratory (or combinational) procedures. Transformational AI-originality is only just beginning. The two major bottlenecks are:

- (1) domain-expertise, which is required for mapping the conceptual space that is to be explored and/or transformed; and
- (2) Valuation of the results, which is especially necessary-and especially difficult-for transformational programs.

## 4. METHODOLOGY:

The study is descriptive in nature and is based on secondary data. The data are collected from various reports, journals, news articles, various bank portals, and RBI portal and internet sources.

#### 4.1 WHAT IS ARTIFICIAL INTELLIGENCE?

Artificial intelligence is an area of computer science focused on creating intelligent machines that function like humans. AI computers are designed to perform human functions including learning, decision making, planning, and speech recognition. In other words, artificial intelligence (AI) is the simulation of human intelligence processes by machines, especially computer systems. These processes include learning (the acquisition of information and rules for using the information), reasoning (using rules to reach approximate or definite conclusions) and self-correction.

In a bank, artificial intelligence is used to manage transactions, invest in shares as well as manage assets. In August 2001, the robot lost man in an artificial buying and selling competition. In hospitals, artificial intelligence systems are used for scheduling of beds, changing the working hours of staff, and providing medical information.

#### 4.2 THE FLOW IN ARTIFICIAL INTELLIGENCE:

There are two main currents in artificial intelligence. Conventional A.I. and Computational Intelligence.

Conventional artificial intelligence is divided into machine learning and statistics. This is also called symbol based, logical, neat A.I. and good old fashioned A.I. It involves for Expert system - This system draws conclusions using causality. This system concludes by analysing a huge amount of information. Case based reasoning. Basin network. Behaviour based intelligence - Departmental method of creating man-made artificial intelligence .allowing methods:

The computer intelligence method involves frequent sequential creation or learning. Education is based on assumed information and deals with non-symbolic, scruffy A.I. and soft computing.

Efforts are also underway to create a hybrid intelligence by combining these two main groups. The rules of proof can be made using highly specialized nerve networks or the rules of creation can be made using statistically trained systems. Artificial Intelligence Amplification This method suggests how artificial intelligence can be created from the effects of technology on enhancing human intelligence.

#### 5. BANKING AND FINANCE:

Artificial intelligence (AI) is disrupting diverse industries, but banking is projected to benefit the most out of incorporating AI systems in the next couple of years. The banking industry has started to seriously consider artificial intelligence-based solutions for resolving many traditional banking problems. An AI system can examine millions and billions of data points, and find patterns and trends that people may miss, and even predict future patterns.

The need for AI powered solutions in Banking & Finance:

- a) Improve the ability to compete with the peers
- b) Increase the standing as an innovative company
- c) Identify opportunities in data that would be otherwise missed.
- d) Increase workforce productivity

#### 6. MAJOR APPLICATIONS OF AI IN BANKING AND FINANCE:

##### Chat bots

It can act as an answering machine and serve the customers continuously throughout a day. It can answer the simple questions of the users of customized banking app and redirect them to the bank's website if necessary. Direct and basic operations including opening or closing the account, transfer of funds, etc. can be done with the help of chat bots.

##### Personalized Customer Service:

Banks are using AI to increase client satisfaction, improve efficiency and maintain customer loyalty in many ways. With AI in finance, it's possible to create intelligent products that can learn from the customer's financial data and determine what's working for them and what's not, and help them track their financial activities better.

##### Handle Risk Management:

While extending loans is a complex and critical process, it requires both accuracy and confidentiality. AI can combine & analyse the data related to the latest transactions, market trends, and the most recent financial activities to identify the potential risks in giving the loan. Banks can also get an idea of the client's behaviour with AI-based risk assessment process. AI can minimize the probability of error in identifying even the slightest probability of fraud.

##### Compliance & Fraud Detection:

With AI, it is possible to simulate umpteen situations where a fraud or cybercrime may occur. It follows a proactive approach to making the financial services' environment safe and breach-proof. AI is helping the field of finance to innovate freely by securing its products and services through a continuous understanding of human psychology. Besides, AI in finance also helps to keep a strict regulatory oversight. AI ensures that all policies, regulations, and security measures are being sincerely followed while designing and delivering any financial service.

### **AML Pattern Detection:**

In most cases, money launderers hide their actions through a series of steps that make it look like money that came from illegal or unethical sources are earned legitimately. Most of the major banks across the globe are shifting from rule based software systems to artificial intelligence based systems which are more robust and intelligent to the anti-money laundering patterns. Over the coming years, these systems are only set to become more and more accurate and fast with the continuous innovations and improvements in the field of artificial intelligence.

### **Process Automation:**

Process automation is one of the key drivers of automation in financial institutions. It's also evolving into cognitive process automation, where AI systems are able to perform more complex automation. AI in finance implies thorough research, understanding, and learning over long periods of time and vast volumes of data.

### **Cost Reduction:**

AI in finance has automated processes and drastically reduced the cost of serving customers. While AI has, on one hand, reduced the cost of financial services, on the other, it has made financing extremely convenient to avail.

### **Voice Assisted Banking:**

This technology empowers customers to use banking services with voice commands rather than a touch screen. The natural language technology can process queries to answer questions, find information, and connect users with various banking services.

### **Algorithmic Trading**

Plenty of Hedge funds across the globe are using high end systems to deploy artificial intelligence models which learn by taking input from several sources of variation in financial markets and sentiments about the entity to make investment decisions on the fly. Reports claim that more than 70% of the trading today is actually carried out by automated artificial intelligence systems. Most of these hedge funds follow different strategies for making high frequency trades (HFTs) as soon as they identify a trading opportunity based on the inputs.

### **Predictive Analytics and wealth management for clients:**

Many consumers want some help when it comes to personal finance advice. Consumers want to be warned and reminded of important information about their own financial data, not told about issues after the fact. AI engines can provide insights on how to best service their high-net-worth clients. By automating large parts of the wealth management process, they would be able to offer personalized, tax-optimized investments to clients, who have far less in investable assets than what would usually qualify for professional wealth management.

## **7. CONCLUSION:**

Robust and rapid processing needs, advent of mobile technology, data availability, and proliferation of open-source software offer AI a huge scope in the banking sector. Though AI has been used in banking for decades, it remained unnoticed. In today's app-driven world, the banking sector eyes on leveraging with the help of mobile app development companies. In all these ways, AI in banking is continuing to transform the industry to provide a greater level of value to their customers, reduce risks, and increase opportunities as the financial engines of our modern economy.

## **REFERENCES:**

1. Dr.C.Vijai, Artificial Intelligence In Indian Banking Sector: Challenges And Opportunities, International Journal of Advanced Research, Vol. 7(5),1581-1587
2. Margaret A. Boden, Creativity and Artificial Intelligence, Elsevier, Volume 103 , Issues1- 2, August 1998 , Page 347-356
3. <https://maharashtratimes.com/editorial>
4. <https://www.loksatta.com>
5. <https://mr.wikipedia.org/wiki>

# A STUDY OF EFFECTS ON CASHLESS PAYMENT SYSTEM IN DEMONETIZATION

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## ABSTRACT:

*Demonetization is an ages' essential encounter and will be one of the monetary occasions within recent memory. Its effect is felt by each Indian resident. Demonetization influences the economy through the liquidity side. Demonetizing is Progressive move to a credit only economy with a more prominent spotlight on electronic exchanges is being visualized. Rising utilization of credit/charge cards, net banking and other online payment systems will be another beneficial outcome of demonetization, as these would bring down exchange costs as well as a portion of these could help acquire some expense pay also.*

## 1. INTRODUCTION:

The demonetization of the most noteworthy division cash notes is essential for a few measures attempted by the public authority to address tax avoidance, fake money and subsidizing of criminal operations. The necessity to store cash notes in overabundance of determined cutoff points straightforwardly into financial balances has brought about the announcement of until now unaccounted pay, subject to higher assessment and different punishments. India has perhaps the most significant level of monetary standards available for use at over 12% of GDP and of this money, 87% is as Rs500 and Rs1,000 notes. Around the world, this isn't surprising as the national banks of a few nations siphon huge measures of money into the economy, generally in huge divisions. Encouraging quicker payment benefits The payments eco-system in the nation gives various alternatives to various fragments of clients for reserves move just as for making payments in return of significant worth for products and ventures. With expanding selection of electronic payments, especially those driving internet business and m-trade, there is a developing interest for quicker payment administrations which, thus, encourage ease in doing monetary exchanges.

## 2. LITERATURE REVIEW:

Annamalai, S. furthermore, Muthu R. Iiakuvan (2008) in their article "Retail exchange: Future splendid for plastic cash" extended the development of charge and MasterCard's in the retail exchanges. They likewise referenced the development factors, which prompts its ubiquity, significant requirements looked by banks and summed up with brilliant future and extent of plastic cash.

Alvares, Cliford (2009) in their reports "The issue with respect to counterfeit cash in India." It is said that the nation's fight against counterfeit money isn't getting simpler and numerous fakes go undetected. It is additionally expressed that forgers up to this point had limited printing offices which made it simpler to find fakes.

Ashish Das, and Rakhi Agarwal, (2010) in their article "Credit only Payment System in India-A Roadmap" Cash as a method of payment is a costly recommendation for the Government. The nation needs to move away from money based towards a credit only (electronic) payment system. This will help lessen money the board cost, track exchanges, check charge evasion/misrepresentation and so forth, improve monetary incorporation and coordinate the equal economy with standard.

Jain, P.M (2006) in the article "E-payments and e-banking" thought that e-payments will have the option to check dark "An Analysis of Growth Pattern of Cashless Transaction System. Exploiting innovation, brisk payments and settlements will guarantee ideal utilization of accessible assets for banks, monetary establishments, business houses and basic resident of India. He likewise called attention to the requirement for e-payments and methods of e-payments and correspondence organizations.

## 3. OBJECTIVES OF THE STUDY:

The examination focuses on:

- To study Role of Demonetization
- To Examine Status of Electronic Payment System

#### 4. METHODOLOGY:

The examination depends on auxiliary wellsprings of information/data. Various books, diaries, papers and important sites have been counseled to make the investigation a successful one. The investigation endeavors to analyze the Cashless Payment System in India.

##### ➤ **Demonetization of Currency**

Demonetization is the demonstration of stripping a money unit of its status as legitimate delicate. It is the way toward stopping to deliver and course specific types of cash. This is vital at whatever point there is a difference in public money. The old unit of money is resigned and supplanted with another cash unit. Lawful delicate is a vehicle of payment perceived by a general set of laws to be substantial for meeting a monetary commitment. It very well may be anything which when offered in payment stifles the obligation. Coins and banknotes are normally characterized as legitimate delicate though close to home checks, MasterCard's, and comparable non-money strategies for payment are not viewed as lawful delicate as obligation commitments isn't alleviated until the payment is offered.

The higher group banknotes in Rs 1,000, Rs 5,000 and Rs 10,000 were once again introduced in the year 1954 and these banknotes were again demonetized in January 1978. So the last time demonetization was done in India is right around 36 years prior.

##### ➤ **Focus on Less Cash & Not Cashless**

- Cash enormously encourages exchanges and there are authentic high worth exchanges in each economy.
- The principal thought behind this exogenous stun is to raise the expense of unlawful exchanges and not going money less.
- Going less-money is a fine harmony between keeping up simplicity of monetary exchanges and controlling acts of neglect.
- As money encourages wrongdoing since it is mysterious and enormous bills are anything but difficult to convey.

##### ➤ **Credit only Payment System**

As the financial system developed, it got simpler, protected and even gainful to keep one's cash in a ledger and it turned out to be even simpler and protected to utilize „transfer of cash in bank accounts“ for making payments for the monetary exchanges. This was all the more so for enormous worth exchanges. As a matter of fact, it is currently utilized similarly for affecting low worth exchanges also. For affecting this exchange of cash in ledgers, a payment instrument was expected to train the bank to impact that move. This instrument was the check for a significant stretch. Hence a system comprising of the check as the payment instruments and a framework around the checks comprising of the drawee bank, the cabinet bank and the check clearing houses went ahead the scene and were known as the payment systems.

With the advancements in the data and correspondence innovation, world over, various types of payment instruments and developments in the instruments and the payment systems advanced. It occurred in India as well and that's the story I will describe now. Today we can flaunt a solid retail payments structure in the nation equivalent to that of any high level nation, and maybe surprisingly better than some of them regarding the assortment and productivity. Different sorts of payment instruments exist to meet the necessities of various clients in various conditions – financial balances, checks, charge and MasterCard's, prepaid payment instruments, and so forth There are different systems to meet the settlement necessities of clients relying on their time criticality and cost affectability – National Electronic Funds Transfer (NEFT), Immediate Payment Service (IMPS), Aadhaar Enabled Payment System (AEPS) and as of late Unified Payments Interface. The requirement for making mass and dull payments is met by systems, for example, Electronic Clearing Service (ECS), National Automated Clearing House (NACH) and Aadhaar Payment Bridge System (APBS).

##### ➤ **How is our Payment System Infrastructure?**

- India has seen a fast disintermediation of the payments system that was once confined to just banks and their conventional clearing offices.
- Entrepreneurs have large amounts of the new computerized payment interfaces, for example, prepaid instruments like versatile wallets.
- These will supplant the customary clearing systems, for example, RTGS (continuous gross settlement) as additionally online offices gave by banks and telecom organizations.
- Unified Payments Interface is in itself a distinct advantage and just banks have been permitted by the Reserve Bank of India (RBI) to become payment specialist organizations keeping wallets and other prepaid instruments out, subsequently giving a lift to banks in the competition to make sure about a major cut of the payments pie.

##### ➤ **Defamation Effect on Electronic Payment System**

The public authority needs India to go credit only, however doing so isn't simple. Credit only exchanges have their disadvantages for customers. Yet, for those with admittance to computerized payments, dismissing credit only choices

or faltering to grasp innovation is additionally not the appropriate response, particularly in the wake of the money crunch welcomed on by the government’s demonetization move. Inquiries of access aside, a credit only world has its advantages. Grasping credit only alternatives What’s more, being an educated customer who knows about the accessible systems and their plans expands the odds of a helpful and shopper amicable experience. Traditionally, online exchanges were done either by giving charge and MasterCard subtleties or through net financial interfaces. While there were issues of security, which continued improving, the payment experience was not very easy to use. These choices were likewise generally confined to PCs with admittance to web. However, after the cell phone unrest, things have changed completely. India has seen a blast in computerized payment alternatives, from e-Wallets to the Unified Payment Interface to a mix of the two. There are numerous credit only payment alternatives accessible in India. 5 Best credit only payment choices in India.

- E Wallets – E Wallets have become extremely well known these days. After demonetization, utilization of e wallets has been executed at a huge scope. These e wallets permit clients to make payments utilizing your portable number or by checking a QR code which happens in a jiffy. You should basically download a wallet like paytm.
- UPI – UPI otherwise called Unified Payments Interface is another extraordinary approach credit only. Brought together payments interface likewise called UPI is system of payments. Utilizing bound together payments interface, individuals can execute utilizing their cell phones. To pay utilizing this system called bound together payments interface, you need 2 significant things: Smartphone and a Bank Account.
- Plastic Money – Plastic Money implies charge cards and Visas that are utilized at ATM’s for money withdrawal and POS machines while shopping. Having a charge or Visas make you trouble free from conveying money.
- Net Banking – Net Banking is another convenient method to complete credit only exchanges. All you require is a ledger with e banking office empowered on it. You can move assets to others account from the solace of your home. There is no need of going to your bank to complete exchanges. You can make all payments and moves yourself. This is an extremely helpful approach credit only in India also.
- Aadhaar Card – Aadhaar Card empowered payment system permits an individual to pay utilizing his aadhaar card on the off chance that it is connected to his ledger. When you interface your aadhaar card to your bank, you can make payments utilizing your fingerprints.

Figure: 1

Electronic Payment Systems - Representative Data (Updated as on December 19, 2016)																							
Data for the period		Volume in million, Value in Rs. billion																					
		RTGS		NEFT		CTS*		IMPS*		NACH*		UPI*		USSD**		Debit and Credit Cards at POS <sup>a</sup>		PPI <sup>#</sup>		Mobile Banking		Total	
		volume	value	volume	value	volume	value	volume	value	volume	value	volume	value	volume (in thousand)	value (in Rs. thousand)	volume	value	volume	value	volume	value	volume	value
Nov-16		7.9	78479.2	123.0	8807.8	87.1	5419.2	36.2	324.8	152.5	606.6	0.3	0.9	7.0	7302.6	205.5	352.4	59.0	13.2	72.3	1244.9	671.5	94004.2
Dec-16																							
	1	0.3	3781.0	10.4	564.6	4.6	288.8	1.8	18.2	11.6	55.7	0.0	0.1	1.0	943.4	8.6	14.6	2.5	0.6	2.8	49.3	39.9	4723.5
	2	0.3	3784.7	7.7	466.6	4.4	265.9	1.7	16.4	9.4	14.5	0.0	0.1	1.2	1349.9	8.9	15.3	2.6	0.6	2.6	89.1	35.1	4564.1
	3	0.3	706.0	6.4	272.9	4.7	231.4	1.7	15.0	6.2	15.3	0.0	0.1	1.4	1413.9	10.0	17.4	2.7	0.6	2.6	26.3	32.0	1258.6
	4	h	h	h	h	h	h	1.2	9.0	h	h	0.0	0.1	1.1	1198.2	9.9	15.3	2.5	0.6	2.0	11.5	13.6	24.9
	5	0.3	3552.4	7.0	459.2	4.9	247.2	1.9	16.5	15.0	64.0	0.0	0.1	0.9	1076.3	10.5	17.5	2.7	0.6	2.5	43.8	42.4	4357.4
	6	0.3	3630.4	6.0	350.1	4.6	222.7	1.7	14.0	18.2	21.1	0.0	0.1	0.8	943.3	9.2	16.0	2.6	0.6	2.5	71.9	42.6	4254.9
	7	0.3	3300.7	7.2	399.0	5.2	256.8	1.8	15.5	13.5	32.0	0.0	0.2	1.3	1358.0	9.8	17.2	2.7	0.7	2.6	44.3	40.5	4021.9
	8	0.3	3151.8	6.9	417.1	5.1	256.6	1.8	15.4	6.0	29.9	0.1	0.1	1.8	1740.3	6.5	12.0	2.5	0.6	2.5	40.2	29.2	3883.5
	9	0.4	4329.5	7.1	473.6	4.8	277.5	1.8	15.3	6.0	17.3	0.1	0.2	2.5	2220.7	10.1	17.0	2.7	0.7	2.3	48.5	33.0	5131.1
	10	h	h	h	h	h	h	1.5	11.6	h	h	0.0	0.1	1.4	1509.0	10.0	16.6	2.7	0.7	1.9	12.5	14.3	29.0
	11	h	h	h	h	h	h	1.0	6.5	h	h	0.0	0.1	1.5	1355.6	9.5	13.8	2.7	0.7	1.8	9.2	13.3	21.1
	12	0.2	297.2	5.3	230.5	2.4	134.0	1.4	11.2	14.0	46.5	0.1	0.2	2.2	1820.6	11.4	19.1	2.8	0.7	2.1	17.5	37.4	739.1
	13	0.4	3684.4	6.4	488.7	5.6	294.6	1.8	13.9	5.5	13.6	0.1	0.2	2.4	2388.2	9.9	15.3	2.8	0.7	2.2	47.5	32.5	4511.5
	14	0.4	3818.4	6.7	487.7	6.5	320.8	1.9	15.5	4.9	23.1	0.1	0.3	1.9	2200.4	9.6	15.4	2.9	0.7	2.3	45.0	33.1	4682.0
	15	0.4	4419.4	6.0	495.3	6.1	292.2	1.9	15.6	6.0	47.2	0.1	0.3	2.3	2553.7	9.5	15.5	2.6	0.7	2.4	45.8	32.5	5286.2
	16	0.4	3213.2	5.8	415.2	6.0	297.2	1.9	15.0	4.5	13.7	0.1	0.3	3.4	3432.9	6.0	11.0	3.1	0.8	2.3	79.1	27.8	3966.3
	17	0.3	707.0	4.9	250.1	5.3	252.4	1.7	13.2	5.6	8.5	0.1	0.3	3.6	3879.1	6.5	12.9	3.0	0.8	2.3	24.2	27.3	1245.0
	18	h	h	h	h	h	h	1.1	6.6	h	h	0.1	0.1	3.4	3439.4			2.8	0.7	1.7	7.4	4.0	7.4

Source: NPCI

National Payments Corporation of India (NPCI) is satisfied to declare that there has been a noteworthy flood in the utilization of cards at Point of Sale (PoS) terminals at shops and other retail sources. During (November 9 and 10,

2016), Cards use on PoS/internet business was around 8 lakh exchanges a day contrasted and a day by day normal of 4 lakh exchanges prior. The estimation of exchanges nearly multiplied.

Mr. A. P. Hota, MD and CEO, NPCI stated, "It is gladdening to observe a decent number of first time clients at PoS terminals. Utilizing the PoS is much less complex than utilizing on ATM. When there are limitations on withdrawal of money in the repercussions of demonetization of notes, utilization of payment cards at PoS for the entire everyday buys is the ideal method to execute."

Immediate Payment Service (IMPS) and Unified Payments Interface (UPI) utilization has multiplied. Pixies and UPI are 24x7 settlement administration. India has 14 lakh PoS terminals and all the terminals acknowledge all brands of charge and Visas.

## 5. CONCLUSION:

The credit only exchange system is arriving at its development step by step , when the market become globalized and the development of banking area an ever increasing number of individuals moves from money to credit only system. The credit only system isn't just prerequisite yet additionally a need of today society. All the online market essentially relies upon credit only exchange system. The credit only change isn't just more secure than the money exchange yet is less tedious and not a difficulty of conveying and inconvenience of mileage like paper cash. It likewise helps in record of the all the exchange done. Thus, it is without question said that future exchange system is credit only exchange system.

## REFERENCES:

1. PIYUSH KUMAR "AN ANALYSIS OF GROWTH PATTERN OF CASHLESS TRANSACTION SYSTEM" Vol. 3, Issue 9, Sep 2015, 37-44 © Impact Journals
2. Speech delivered by Shri R. Gandhi, Deputy Governor at the Banaras Hindu University, Varanasi on Oct 22,2016.
3. RBI Bulletin December 2016
4. file:///E:/demo/What%20are%20the%20impacts%20of%20Demonetisation%20on%20Indian%20Economy\_%20-%20Indian%20Economy.html
5. file:///E:/demo/Regulating%20the%20Digital%20Payment%20system%20%E2%80%93%20IAS%20Parliament.html
6. file:///E:/demo/Moving%20Towards%20a%20Cashless%20Society%20%E2%80%93%20IAS%20Parliament.html
7. Demonetization: Impact on cashless payment system by Manpreet Kaur
8. file:///E:/demo/Going%20cashless%20after%20demonetisation\_%20Compare%20eWalleets%20and%20UPI%20apps%20for%20what%20suits%20you%20best.html
9. file:///E:/demo/Demonetisation%20%E2%80%93%20IAS%20Parliament.html
10. <http://thetechpert.com/cashless-payment-india/>

# SENSOR TECHNOLOGY & SENSORY MARKETING THEIR EFFECTIVENESS ON INTERACTIVE ADVERTISING

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## ABSTRACT:

*The inventive reasoning is one of the significant styles of reasoning, which are utilized by fashioners to communicate their thoughts and to communicate data of a publicizing message to a beneficiary by Achieving the achievement of promoting through stand out , utilizing innovation advancement in presentation frameworks and computerized collaboration, through the ease of use for sensors, in accepting and sending data between the components of the Interactive correspondence measure " sender - collector - medium), which should be made by new principles identified with the new innovation factors and tangible showcasing, which plans to Seduce the buyer utilizing the impact of his senses to impact his emotions and conduct, when we discusses "senses" we mean the five detects (sight, hearing, smell, taste and contact), which consider significant variables that associate with general climate .*

## 1. INTRODUCTION:

The declaration of the main constituent neighborhood economy nations enterprises, where dealing with giving messages and signals tangible and non-sensory fill in as an impetus for the reaction to the recipient of the message Ad factor, in spite of the distinctions in publicizing media and pluralism, there are factors that expansion the way toward standing out uncle by mixing the senses.

## 2. THE SENSES:

A comprehensively adequate meaning of a sense would be "A framework that comprises of a gathering of tangible cell types that reacts to a particular actual wonder, and that compares to a specific gathering of districts inside the cerebrum where the signs are gotten and deciphered." There is no firm arrangement concerning the quantity of senses in light of varying meanings of what establishes a sense.

The senses are as often as possible separated into exteroceptive and interceptive:

- Exteroceptive senses are senses that see the body's own position, movement, and state, known as proprioceptive senses. Outer senses incorporate the conventional five: sight, hearing, contact, smell and taste, just as thermoception (temperature contrasts) and perhaps an extra feeble magnetoception (bearing), Proprioceptive senses incorporate nociception (torment), equilibrioception (balance), Proprioception (a feeling of the position and development of the pieces of one's own body).
- Interceptive senses are senses that see sensations in inside organs.
- **Sight:** Sight or vision (descriptive structure: visual/optical) is the capacity of the eye(s) to shine and distinguish pictures of noticeable light on photoreceptors in the retina of each eye that creates electrical nerve driving forces for shifting tones, shades, and splendor. There are two sorts of photoreceptors: bars and cones. Poles are touchy to light, however don't recognize colours. Cones recognize colours, however are less delicate to diminish light. There is some difference with respect to whether this comprises one, a few detects. Neuroanatomists for the most part view it as two detects, given that various receptors are answerable for the impression of shading and brilliance. Some argue[citation needed]that stereo sis, the impression of profundity utilizing the two eyes, additionally establishes a sense, yet it is for the most part viewed as an intellectual (that is, post-tangible) capacity of the visual cortex of the cerebrum where examples and articles in pictures are perceived and deciphered dependent on recently learned data. This is called visual memory. The failure to see is called visual impairment. Visual deficiency may result from harm to the eyeball, particularly to the retina, harm to the optic nerve that interfaces each eye to the cerebrum, as well as from stroke (infarcts in the mind). Transitory or perpetual visual impairment can be brought about by toxic substances or drugs. Individuals who are visually impaired from corruption or harm to the visual cortex, yet have practical eyes, are really able to do some degree of vision and response to visual improvements however not a cognizant discernment; this is known as visually impaired sight. Individuals with daze sight are normally not mindful that they are responding to visual sources, and rather unknowingly adjust their conduct to the improvement.
- **Hearing:** or try out is the feeling of sound discernment. Hearing is about vibration. Mechanoreceptors transform movement into electrical nerve beats, which are situated in the internal ear. Since sound is vibration, engendering through a medium, for example, air, the identification of these vibrations, that is the feeling of the conference, is a

mechanical sense in light of the fact that these vibrations are precisely led from the eardrum through a progression of small unresolved issues like filaments in the inward ear, which distinguish mechanical movement of the strands inside a scope of around 20 to 20,000 hertz, [4] with generous

Variety between people. Hearing at high frequencies decreases with an expansion in age. Failure to hear is called deafness or hearing impedance. Sound can likewise be distinguished as vibrations led through the body by tactician. Lower frequencies that can be heard are identified along these lines. Some hard of hearing individuals can decide course and area of vibrations got through the feet.

- **Taste:** (or gestation) is one of the conventional five detects. It alludes to the ability to recognize the flavour of substances, for example, food, certain minerals, and toxins, and so on The feeling of taste is regularly mistaken for the "sense" of flavour, which is a mix of taste and smell insight. Flavour relies upon scent, surface, and temperature just as on taste. People get tastes through tangible organs called taste buds, or gustatory calculi, focused on the upper surface of the tongue. There are five essential tastes: sweet, unpleasant, acrid, and pungent and umami. Different tastes, for example, calcium and free unsaturated fats may likewise be fundamental tastes however still can't seem to get far and wide acknowledgment.
- **Smell:** or olfaction is the other "synthetic" sense. In contrast to taste, there are many olfactory receptors, each authoritative to a specific sub-atomic element. Smell particles have an assortment of highlights and, in this manner, energize explicit receptors pretty much unequivocally. This blend of excitatory signs from various receptors makes up what we see as the particle's smell. In the mind, olfaction is handled by the olfactory framework. Olfactory receptor neurons in the nose vary from most different neurons in that they pass on and recover consistently.
- **Touch:** or some to sensation, likewise called tactician or mechanoreceptor, is an insight coming about because of enactment of neural receptors, by and large in the skin including hair follicles, yet in addition in the tongue, throat, and mucosa. An assortment of weight receptors react to varieties in weight (firm, brushing, continued, and so on)

Contrasting these senses with sensors with get outer improvements identified with the intended interest group and around the factors, at that point prepared by the PC to re-shipped off the showcase gadget and the collaboration that coordinated the two beneficiary speak with the senses happens cycle of standing out and attention to publicizing messages to produces a particular reacted conduct viable do with him, In request to explain this relationship during figure (1) that follows:

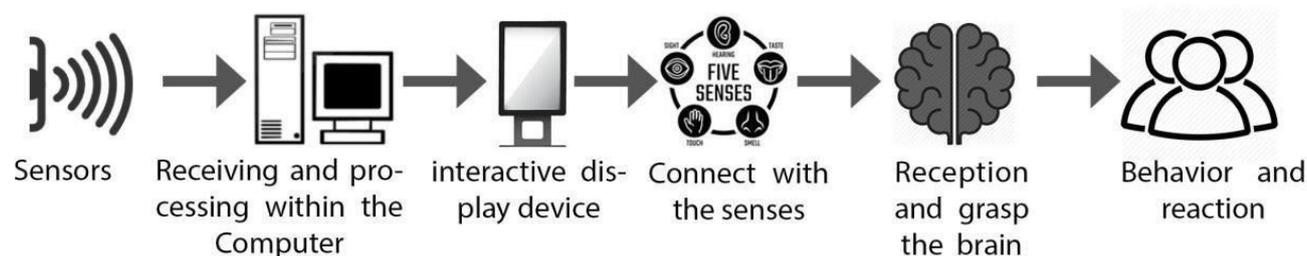


Figure 01

### Sensors

Sensors are equipment parts, which give to PC the data sources in any case to the sensor type and data about general climate "areas". Projects can access on the PC data through sensors and put away or used to aid the execution of every day errands or to improve the convenience of human intuitiveness with various kinds of PC gadgets.

There are two kinds of sensors:

- Sensors implanted in the PC
- The Sensors associated with the PC reaching wired or remote

A few instances of sensors incorporate sensors area gadget, for example, a GPS beneficiary that can recognize the current PC area. Along these lines the program can utilize the site to give you data about close by cafés or driving headings.

Is a gadget that can identify and gauge some actual wonders, for example, weight, light or different properties, the sensor is fit for changing over these estimations into an electrical sign got by another gadget, and a large portion of the flow sensor gadgets can speak with the electronic gadget that can record such estimations and data, and the advancement of science turned into the sensors are a necessary piece of day by day life, for example, the telephone screen or sensors on entryways in business sectors

### A. Sensing innovation definition:

There are numerous meanings of this innovation; coming up next are the four generally significant of these definitions:

- Intended detecting absolute tasks, which permits admittance to data about something, without that there will be no immediate contact among him and catch this data gadget.

- Sensing is that science, which utilizes the properties of electromagnetic waves reflected, transmitted from earthly articles, from the air, or from ocean water and the sea in unmistakable by their particular gadgets.
- Sensing can be seen that: a gathering media, recipients, and accepting information preparing programs, which permit a comprehension of materials and marvels by their actual properties.
- Sensor: is the science can get reflectance and unearthly conduct of information objects, which can be changed into data through the enlistment treatment measures.

#### **B. Types of Sensors**

- Acoustic, sound, vibration
- Automotive, transportation
- Chemical
- Electric flow, electric potential, attractive, radio
- Flow, liquid speed
- Ionizing radiation, subatomic particles
- Navigation instruments
- Position, point, dislodging, distance, speed, quickening
- Optical, light, imaging, photon
- Pressure
- Force, thickness, level
- Thermal, heat, temperature
- Proximity, presence

Utilizing current advances in sensors to mix the senses in promoting, inventive reasoning can be by making creative approaches to stand out using sensors to mix the feelings of the crowd can be delineated by the term tangible advertising

### **3. SENSORY ADVERTISING:**

Sensory advertising is a kind of showcasing those claims to all the senses according to the brand. It utilizes the senses to relate with clients on a passionate level. Brands can manufacture passionate relationship in the clients' psyches by engaging their senses. A multi-tangible brand experience produces certain convictions, sentiments, considerations and conclusions to make a brand picture in the shopper's psyche, Via Marketing procedures that plan to allure the buyer by utilizing his senses to impact his emotions and conduct.

Tangible marking is utilized to identify with the client in a more close to home manner than mass advertising. It is a procedure that does what conventional types of promoting cannot. It is utilized in retail plan, magazines, showrooms, exchange reasonable corners, administration focuses, and corporate headquarters. A multi-sensory encounter happens when the client is spoke to by at least two detects.

The tangible promoting approach attempts to fill in the inadequacies of the "customary showcasing" which is excessively sane. Exemplary promoting depends on the possibility that the client is discerning that his conduct is penniless up in characterized contemplated ventures, as indicated by the offer, the opposition, and the solution to his requirements. By contrast, tangible showcasing put the encounters lived by the purchasers and his sentiments all the while. These encounters have sensorial, passionate, intellectual, conduct and social measurements, not just practical. It expects to make the sufficiency of the items with their plan and their bundling, and afterward to valorize them in a business climate to make them appealing. There, the shopper is acting as per his impulsions and feelings, more than his explanation.

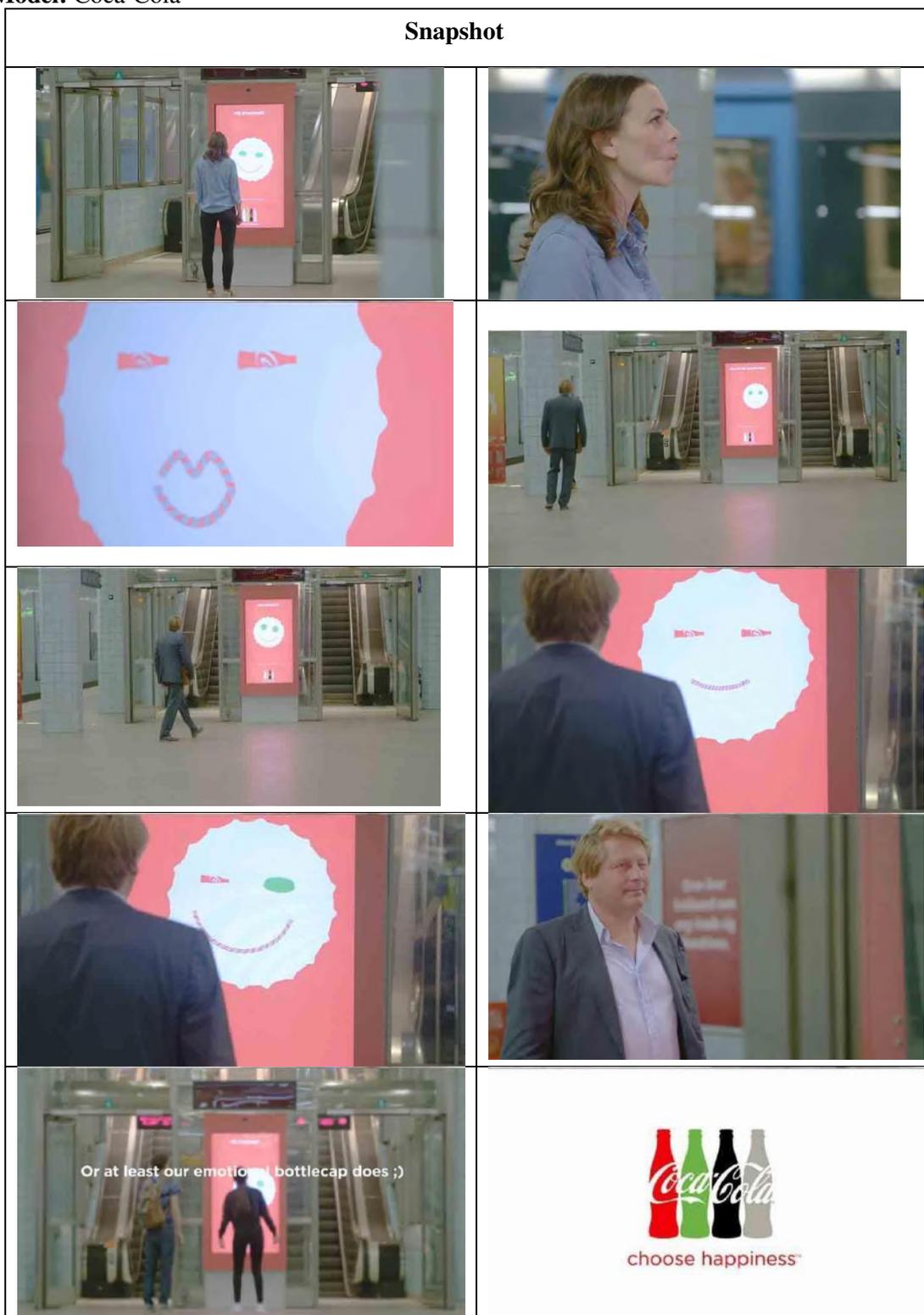
The fundamental use for tangible advertising is to interest the customer's detects. It is likewise used to comprehend the feelings and encounters of the shopper when being attracted to, buying or utilizing the item infiltrate and rule piece of the pie, increment benefit and to guarantee introductory and rehash buys. Sensory promoting is utilized to make an environment that urges the client to pay cash and can be affected by sight, clamour, contact, taste and smell.

Sensory advertising is characterized as a method of:

- measuring and clarifying purchaser feelings
- spotting and profiting by new market openings
- An occasion to boost item benefit
- ensuring first and rehash buy (dedication)
- ensuring dependable item achievement

Hence we presume that there is a solid connection between sensory promoting and publicizing fabricated sensors and could be explained through the accompanying scientific examination

**4. ANALYTICAL STUDY:**  
**Analytical Model: Coca-Cola**



<b>About Product</b>	Coca-Cola is a carbonated soft drink. It is produced by The Coca-Cola Company of Atlanta, Georgia, and is often referred to simply as Coke.
<b>About ad</b>	<ul style="list-style-type: none"> <li>- The Coke-moji Happiness Experiment</li> <li>- <b>Location:</b> Subway station in Stockholm, Sweden</li> <li>- <b>Date:</b> Published on Sep, 2015</li> <li><b>Advertising Agency:</b> Isobar Sweden</li> </ul>

<b>ad Philosophy</b>	Hötorget subway station in Stockholm is a great place to try out new digital fun ads, as their posters are mostly digital ones and the station itself isn't as crowded as the Central station. Here Coke decided to have some fun with posters that interact with people, if you stood in front of it and smiled, the interactive billboard would mimic your facial expression best it could. Thus making you laugh, and spreading happiness. Quite a cute idea that I'm sure entertained bored commuters as they waited for trains. Bonus, there's Coke available in the platforms vending machines too, so anyone could get a cold one if they got a hankering after playing with the billboard.
<b>Ad Types</b>	competitive commercial interactive ad
<b>Media Type</b>	Interactive outdoor banner
<b>Excited the senses</b>	<ul style="list-style-type: none"> <li>- Sight by visual design</li> <li>- Motion</li> </ul>
<b>Sensor Type</b>	<p>Infrared Camera</p> 

<b>Action Sensor Technology</b>	Using face recognition technology, a software application that is able to determine or verify the digital image or video frame and comparing facial features
<b>Substances that stimulate ad</b>	Motion
<b>Type device used in display ad</b>	Interactive Digital Screen
<b>Programs used</b>	Unity Program
<b>The message Ad</b>	Choose Happiness
<b>The idea of advertising</b>	The idea of advertising replace the features pouting of features joy and happiness through the reflection of those features on the screen compact with digital camera and face recognition technology, the replacement of facial features recognizable symbols and linked to the identity of the Coca-Cola product
<b>The target audience category</b>	All public audience

**5. CONCLUSION:**

Through the past focuses and the insightful models the following ends are:

- Engaging the Sensory Marketing and sensor innovation in the Interactive Advertising should causing collaboration and mixes the senses to accomplish greater unwavering quality in the connection between the shopper and the publicist organization about a particular item or in conveying new coordinated publicizing idea.
- As a consequence of association among customer and the intuitive promoting that sway the shopper sense, new bound and ideas made in the cognizant and sub cognizant levels which will have large impact in dynamic cycle as a top priority of purchaser, and buyer conduct.
- The tangible Advertising is the start of another age in intelligent publicizing which will acquire new idea and thoughts life and greater open door for creators and sponsors to change buyer conduct to a particular organization or item or new innovation ideas.
- Expand the field of innovative reasoning produces the manifestations of new publicizing thoughts add to expanded consideration which will diminish customer response time to the back rub and impact in his dynamic cycle and that will accomplish promotion benefit and in this way increment the organization's benefits.

#### REFERENCES:

1. Dr. Maysoon Mohamed Qutp, Evaluating the role of creative thinking methodologies in the expression of ideas in advertising design , International Design Journal Issue 4 Volume 3.
2. Aradhna Krishna ,Customer Sense: How the 5 Senses Influence Buying Behavior ,2013 ,palgrave macmillan, US Newyork , p5-18.
3. Matthew, Healey (2008), What Is Branding?, Switzerland: RotoVision SA, pp. 110–111.
4. Leatrice, Eiseman, Impact of colours on consumer purchase behavior , retrieved 27 October 2011.
5. Hultén, Bertil (2011), "Sensory marketing: the multi-sensory brand- experience concept", European Business Review 23 (3): 256–273.
6. The Merriam-Webster new book of word histories. Merriam-Webster. 1991. p. 508.
7. <http://www.advertolog.com/coca-cola/billboard/the-drinkable-poster-20645855/> 12/12/2015.
8. [https://adsoftheworld.com/media/outdoor/coke\\_zero\\_the\\_drinkable\\_poster](https://adsoftheworld.com/media/outdoor/coke_zero_the_drinkable_poster) 12/12/2015.
9. <http://drinkable.squarespace.com/poster/> 12/12/2015.

# A STUDY OF SMART CITIES USING BIG DATA ANALYTICS

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## **ABSTRACT:**

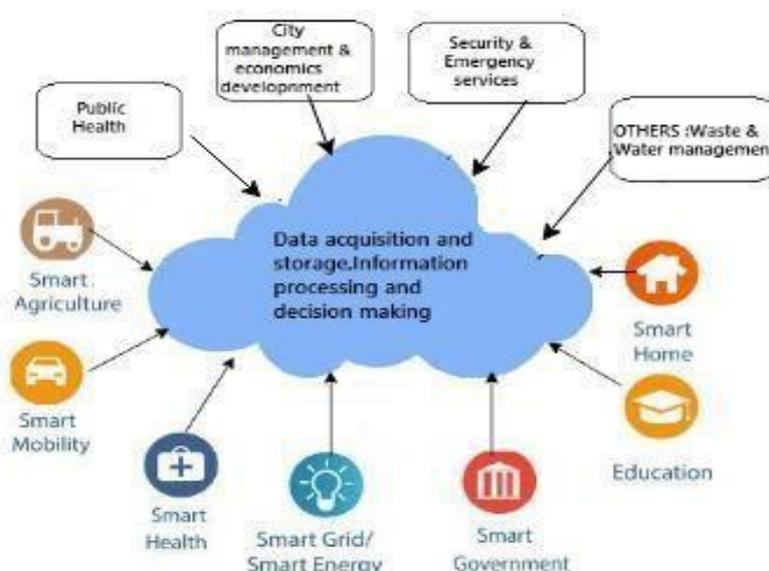
*Many Governments are receiving the smart cities and executing big data applications to arrive at the necessary degree of supportability and improve the expectations for everyday comforts. Smart cities use different innovations to improve the more elevated levels of solace to their residents. Smart cities include lessening asset utilization and expenses notwithstanding more effectively and adequately captivating with their residents. One the new advances improve big data as smart cities. It has become a piece of regular day to day existence, data assortment amassing of immense measures of data that can be utilized in advantageous areas. Usage and powerful investigation of big data is a critical factor for achievement in many assistance and business spaces. This paper surveys the smart cities dependent on application of big data. It analyzes and examines distinctive definition, challenges, advantage, Application of big data and smart cities. This paper surveys that few open doors are accessible for using big data in smart cities.*

## **1. INTRODUCTION:**

Without a doubt, the fundamental strength of the big data is gathering the immense measure of data; it will have various parts of the smart cities. Big data developing quickly, presently at an extended pace of 40 % development in the measure of worldwide data created every year versus just 5 % development in worldwide IT spending. Around 90 % of the world's digitized data was caught over only the previous Five years. According to results numerous legislatures have begun to use the big data to advancement and maintainability of smart cities. That permitted cities to look after norms, prerequisite, applications, and directors of smart cities. The attributes of smart cities incorporate strength, administration, maintainability, upgraded personal satisfaction and keen of common assets. There are all around characterized parts of smart cities, for example, climate, versatility, medical care, administration and individuals just as its applications and administrations, for example, smart education, energy, transportation and medical services. To encourage such applications and storerooms and enormous computational administrations required. One approach to give such plat from is Cloud Computing and use the numerous focal points of utilizing cloud administrations to help big data in smart cities the executives. The principle commitment of this paper is application of big data in smart cities openings and difficulties for using big data in smart cities. In this paper plan and execution of big data dependent on application of smart cities and administrations. In this Section1 presenting ideas of big data, smart cities. Segment 2 we will examine the advantages and Opportunities of smart cities in big data. Segment 3 will talk about difficulties of utilizing big data in smart cities. Segment 4 Requirements to actualize smart cities applications dependent on big data. Area 5 we will show and examine some open that may help to other exploration in the fields and Section 6 we will close the paper.

## **2. BACKGROUND:**

The smart cities idea has not the same as the mechanical point of view versus individual's viewpoint. It characterizes a created metropolitan territory that makes high caliber of life and financial advancement in various key territories, individuals, living, climate, government and versatility. The upgrade of the personal satisfaction for specific city residents to use data structure specific equipment, software, organizations and data on various city administration and territories. It likewise includes different city parts like transportation, medical care, regular assets, force, education and public security. We can incorporate a smart city as living arrangement that joins numerous lives, for example, transportation, and structures in a smart to improve the nature of smart cities. Likewise definition additionally centres around the fate of asset and applications for people in the future. We noticed this viewpoint on every area, size and assets. When all is said in done governments around the globe are generally about the expense of securing a smart city because of monetary capacities, normal or human and asset the executives. Capacities and Availability of size of assets and difficulties of keeping up and fabricating a smart city. The specialized difficulties requiring the influences the odds of achievement. Various assets are produced from database bringing about the development of what is actually known as big data. Data sets are around us all over the place, smart telephones, GPS, ecological sensors, PCs and even individual's different application like games, promoting applications, advanced pictures, online media destinations and a lot more quicken data from past few years.

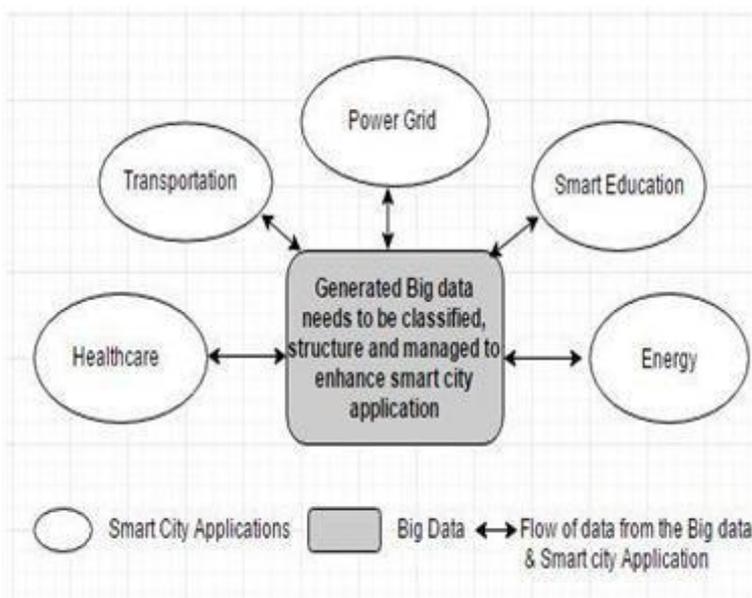


**Fig 1:** Cloud to store data generated from different components of a smart city.

SAS: "Big data is a used to depict the accessibility, data, both organized and unstructured development" IBM: "Data coming from wherever like sensors, atmosphere data, pictures and recordings, exchange records, web-based media, GPS signals"

Big data put away enormous measure of data whether it is organized or unstructured and complicated Big data is from data is handling is the type of customary database.

Big data frameworks will store immense measure of data, store data in effective way to deliver data to improve smart city administrations. By this data big data will assist overseer with getting ready for any extension in smart cities, territories and assets.



**Fig 2:** Smart Cities related to big data

**A few attributes of big data.**

**Volume:** The size of data that has been made from data sets. **Speed:** The speed at which data is put away, handled, dissected, produced. It will uphold continuously Big data the executives frameworks.

**Assortment:** The various sorts of data being produced that most data is unstructured and can't be effortlessly organized or arranged.

Nonetheless, limited by the devices accessible and innovation accessible. For Big data to accomplish its administrations and objectives in smart cities, it needs the correct devices and techniques to arranged and investigated productively and adequately. By understanding accessible restrictions and capacities, we can catch numerous for better application and administrations for smart cities utilizing big data.

### 3. BENEFITS & OPPORTUNITIES:

At present, numerous cities to be smart cities on account of advantages like ecologically, financially and examination. Subsequently we will talk about so of the advantages and openings that may help to undercover our city as smart city. By this advantages and openings we can re-plan our city as smart city. By utilizing advantages and occasions to we can accomplish upgraded levels of manageability, administration and versatility. We can improve the personal satisfaction and characteristic asset and presenting clever administration of foundation.

A portion of the advantages of having a smart city incorporate the accompanying:



Fig 3: Benefits of Smart City

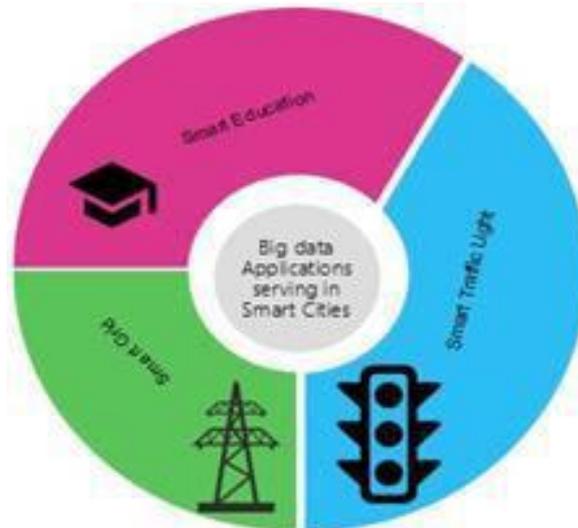
Proficient asset usage: Resource become an either scant or pricey, it is more controlled use and incorporate arrangements of these assets. Mechanical frameworks, for example, Enterprise asset arranging and Geographic Information frameworks. Observing framework, it will be simpler to spot squander focuses conveyed assets while decreasing energy and controlling energy and normal assets. Smart cities applications intended for entomb network and data assortments which work together for administrations and applications.

Better Quality of life: With better proficient work, administrations and living models, smart cities will have better Quality of life. The after effect of area and living/work spaces, more transportation for better and quicker administrations and enough accessibility of data to settle on choice.

More significant levels of straightforwardness and transparency: Needs for better control and the board of the smart city applications and viewpoints, receptiveness and between operability to more elevated levels. These will correspondence and coordinated effort among making and substances more administrations and applications to improve the smart city. The public authority and residents substances to trade and utilize the data adequately.

These advantages to be accomplished association regarding the application and required elevated levels of complexity, individuals and asset required there is likewise need to set a top notch, protection, control and high security of the data just as utilizing data documentation principles to give direction on the utilization of substance and data sets. The innovation is each valuable to assurance and the executives of ecological assets and framework, and Sustainability to builds an objective of characteristic assets. Smart cities application gives the expected application in big data. It offers better types of assistance and experience which help business with better execution in big data scientific. Improving medical care by preventive consideration administrations, finding, therapy apparatuses, and medical care the executives. Transportation to upgrade timetables and course, earth neighbourly and oblige for fluctuating requests.

Big data and cloud will help numerous issues like stockpiling, examination instruments. It will come to the empower joint effort and development arranges and speak with various elements of smart cities. This will be finished by big data networks to function as innovative arrangements and community oriented applications for regions like conditions, security energy, law, assembling and education. Big data will be assistance continuously answers for difficulties in group the board, transportation and agribusiness. There are some genuine - time models in smart cities utilizing Big data application, for example,



**Fig 4:** Real-Time Example of Smart cities using Big Data

**Smart Education:** Information and correspondence innovation and Big data will likewise assist a with making an information based information based society which will help the seriousness and ability. Big data in education is basically by gathering data from individuals like understudies, educators, guardians, heads, foundation like schools, libraries, educational areas, instructors, exhibition halls, colleges and data like courses, tests, books, financial aspects, reports and that's just the beginning. Data will make a helpful asset to examination and separating data to better upgraded education. As an illustration data underpins educational individual learning, "create practice and normalize of information". Big data in education can likewise be used in educational plan.

**Smart traffic signals:** When populace expands, contamination, financial aspects issues, traffic issues occurs. Smart deals lights and signals is one of the main strategies that smart cities manage high volumes of clog and deals. Smart signals and lights interconnected with traffic matrices about traffic designs. Sensor distinguishes alternate boundaries of traffic stream like gridlocks, rates of vehicles, holding up time at the lights, speed of vehicles. The framework boundaries give these boundaries and gives signals and lights.

**Smart matrix:** In smart city significant part is smart network. To gather data structure electrical network frameworks. It improves unwavering quality, financial aspects, and productivity of electric force. A smart is two-way correspondence innovation utilizes in PC based controllers. This includes putting smart sensors and meters on conveyance, creation and transmission continuously data about the current force utilization and shortcomings. It can give shoppers close to continuous data of energy and permits them in the two necessities and moderate costs. Buyer's gadgets like water warmers and clothes washers can be more expense to controlling them consequently at low valuing period.

#### 4. CHALLENGES:

Numerous difficulties face the turn of events, plan and sending of smart cities utilizing big data Analysis. Smart cities considering conditions and dynamic, these difficulties engaged with improvement and plan for smart cities. These are identified with accessible big data devices, cost, and openness, portrayal, scientific and ongoing logical. Some of key Challenges for smart cities utilizing big data:

**Data source and attributes:** Big data is produced from a wide range of arrangements and various sources. There are numerous data designs Which are unstructured (Eg: Audio, Video, Server logs, etc.)This data characterized and oversaw into an organized configuration utilizing progressed database frameworks. Big data creates very methodologies and complex models and make it difficult to oversee. Data mining instruments can't be handle the huge size and unpredictability. Gathering data without anyone else is perplexing by

Presence of numerous sources with various access countries and utilization and with various kinds and arrangements. The data of unstructured nature arrange and classify the data and effectively available to utilize.

**Data and data sharing:** Sharing data and data among various city is challenge. Every city and government organization or division ordinarily has their own stockroom and public data. Here we will gather our data dependent on guaranteeing residents right of security in big data investigation. Here we have numerous areas and businesses associated with smart cities. Smart city application need to forestall to accomplish consistent data. It is anything but difficult to recognize data in big data her, we can extricate, change, stacking data through new information dependent on explicit data and constant data.

**Data Quality:** Big data give a data quality, data caught by various individuals under any standard organizations and put away in particular database. Different data will be experiences absence of heterogeneity, consistency and divergence issues will happen. As needs be," there is no widespread method to change and recover the data source from valuable examination". For instance, sensor data gathered through an outsider without unified control of sensors data.

**Security and protection:** Another significant issues is security and security, is significant difficulties in smart cities utilizing big data. In these database incorporate private data related individuals and government, we should need high security and protection issues. We ought to need to shielded data from malignant assaults. These application ought to require high security until data move to another sort database or organization. Today the vast majority of big data logical incorporates Cassandra and Hadoop and Map decrease capacities to perform absence of security. The parts of smart city application give obviously of protection privileges of individual and association data will be speak to. All of data like, Medical records, bank records, monetary records all records will be view by individuals. This is the significant test utilizing in the big data in smart cities.

**Cost:** Cost is a touchy subject that influences public when they use ICT (Information and correspondence innovation) arrangements. For instance, utilizing energy decrease, parts or highlights to record data. Here, it is over the top expensive to execute, results significant expenses, and the city may be influenced. Testing of smart cities and smart sign frameworks has significant expense. Testing isn't just significant expenses in assets likewise a traffic issues and it is truly sent in testing frameworks. It is likewise costly in equipment and software for future checking and improvement of smart cities applications and framework.

**Smart city populace:** People impact on the smart city application on the grounds that big data size impact for impact for a city's populace size. Size of the populace develops in light of the fact that size of data quickly develops. On the off chance that populace increments quickly development will be created on traffic, social, financial aspects, specialized, issues, contamination and climate of a cities. Big data stay away from issues dependent on smart city applications rapidly and successfully handle the filling in the volume and assortment. The objective is creating and conveys smart city applications to deal with the development in big data to better outcomes.

## 5. REQUIREMENTS:

The key parts needed to actualize and plan the big data in smart cities application. Big data gathers data from sensors, electronic data perusing, and clients to deal with the volume of quickly development. Preparing, putting away and arranging data. It is needed to choose the turn of events and plan in an arranged way.

The application of big data to smart cities is grouped into two sorts, ongoing big data and offline big data application. Ongoing Big data big data are quick to get to data from database and we can settle on a choice with short timeframe line. Much of the time, in timetable period just we ought to need to take a choice on the off chance that we doesn't take a choice it is pointless. It is critical to make a data from ideal style and that is examination to done in a quick and dependable manner. Big data applications for smart cities are arranging in regions like medical care, traffic, education, controls on continuous application.

Big data application dependent on smart cities, it is address a few prerequisite smart city nature needs and big data trademark. These prerequisites are recognized dependent on difficulties of smart cities applications and dependent on big data applications. These prerequisites are identified with governments and mindfulness jobs. The prerequisite are apply to big data applications and valuable the smart city conditions.

**Progressed Algorithms:** Big data can't deal with the ordinary application because of extraordinary necessity and applications and need for high volume and speed. Big data can't deal with the all the data mining calculations .Big data calculation depend on restricted and all around characterized data sets. Smart cities utilizing Big data application need to actualize complex and advance calculation will be pardoned in Big data investigation. A few applications are planning for a continuous application and another for offline applications. This calculation based high data volume and enormous data sets and dynamic cycles to be enhanced data. These calculations depend on heterogeneous conditions and capacity of handle the exceptionally powerful conditions.

**Open standard Technology:** Advantages of open norms actualizing and planning data huge size of Heterogeneous data and frameworks in big data in smart cities and it will be greater adaptability for overhauling and keeping up application for smart cities. To locate the smart cities application standard guidelines applications for foundation and climate of big data application. The public authority substances, foundation and partners to survey fates of smart cities. We can plan and advancement for smart cities through big data applications.

**Security and Privacy:** The data gathered and prepared in smart cities will contain in a from private data to guarantee the applications and mechanical and keep an elevated level of security and protection systems. Smart cities give numerous positive focal points; it represents a few dangers to their depending data. It will make sure about our data from unlawful assaults or noxious assaults. Big data application give security and protection strategies plan during create and execution of codes.

**Resident Awareness:** Citizen mindful to utilize ICT answers for smart cities securely and effectively. The various issues may experience with smart cities applications nature of data assortment, execution of data applications. In light of results dynamic produced using gathered data to improve smart cities parts in big data applications. Resident mindfulness is significant function in their insight into great wellbeing, protection and security. Big data will be ensuring and familiarity with their own data.

**Government Roles:** Smart cities in Governing substances much core values of coordinated effort, investment to trading stream of big data in control. It requires a big data frameworks to gathered data from government elements. It required basic part in smart cities. The public authority should audit the data on security, data precision, data access and conservation. Documentation and code books are utilization of the data sets. Adequately Big data application helps in smart cities gainful employments of data singular protection ideas of security laws.

## 6. DISCUSSION & OPEN ISSUES:

The fundamental to dependable, clear designs for smart cities past in independent ventures or solid vital smart cities utilizing big data examination. Big data is seen as more grounded empowering agent for smart cities; these will be contrast and distinctive data. Big data will be hard to gather, store, oversee and examine data. Incredible occasion to make smart cities applications adequately to data and apparatuses to settle on choice. Smart cities will utilize big data without their insight understanding the smart cities and the requirements for propels big data and placing all these innovation to begin their structures in smart cities. Three classes to see big data: "development of application frameworks, public stages for smart city, public foundation" The smart cities prerequisites are physical, social and innovative. Making guide for accomplishment of covering a few phases:

1. Set up mission, vision, key and operational in smart cities.
2. Big data will utilize assets, arrangements, directors and controlling ICT.
3. Public framework and ICT stage requires smart city applications.
4. Most significant parts and applications utilized in smart cities and it give needs.
5. For Citizen Application framework and administrations in big data application grow better highlights.
6. Identify foundation and ecological enhancements and administration to smart applications and operational and administrations utilizing data gathered.
7. New necessities and issues are emerging by additional advancement by observing current turns of events.

Data innovation and ICT remembering Big data for smart cities applications different substances are living in and utilizing it. It is sufficient to incorporate account and asset to help and create through the different phases of smart cities in big data. Work and expenses of undertakings incorporate a portion of the accompanying exercises:

1. Predictive and see estimate changes and potential changes in the given issue. In any event diminishes chances required through testing and execution.
2. Smart cities application in big data follows risky methodologies and effective models.
3. Resource and trading to showcasing frameworks like smart frameworks/administration, data frameworks. In these more frameworks are associated with smart city.

Relationship the researching big data in smart applications. Incorporate right application to right data to arrive at better streamline and choices in the capacity of smart cities. Basic chart for estimations of studies.

## 7. CONCLUSION:

Big data and smart cities are two significant ideas hence many began incorporated with create smart cities application with better versatility, successful administration, improved personal satisfaction, the executives of smart cities in assets. Recognize the overall advantages of utilizing smart cities to plan and support in big data. We examined the different open doors accessible in smart cities and using the abilities of data through results are activities. We additionally examined the different difficulties in spaces and recognized a few issues in big data application in smart cities. Usage and plan proficient and compelling applications. Various approaches to deliver the difficulties to determine the produces and issues in better outcomes. At last open issues to deliver and examined to see smart cities and create them.

Conveying and building big data application in smart cities effectively to address the difficulties and open issues to actualize and plan the HR, Further upgrading it smart cities application to better making ideas, making a smart city with conceivable further it for an assistance and models will be a reasonable objective and feasible objectives.

## REFERENCES:

1. Pantelis K, Aija L. Understanding the value of (big) data. In Big Data, 2013 IEEE International Conference on IEEE; 2013. pp. 38–42.

2. Khan Z, Anjum A, Kiani SL. Cloud Based Big Data Analytics for Smart Future Cities. In Proceedings of the 2013 IEEE/ACM 6th International Conference on Utility and Cloud Computing. IEEE Computer Society; 2013. pp. 381–386.
3. Kitchin R. The real-time city? Bigdata and smart urbanism. *GeoJournal*. 2014;79(1):1–14.
4. Townsend AM 2013. Smart cities: big data, civic hackers and the quest for a new utopia. WW Norton & Company. Batty M. Big data, smart cities and city planning. *Dialogues Hum Geog*.2013;3(3):274–9.
5. Vilajosana I, Llosa J, Martinez B, Domingo-Prieto M, Angles A, Vilajosana X. Bootstrapping smart cities through a self-sustainable model based on big data flows. *Commun Mag, IEEE*. 2013;51(6):128–34.
6. Michalik P, Stofa J, Zolotova I. Concept definition for Big Data architecture in the education system. In *Applied Machine Intelligence and Informatics (SAMI), 2014 IEEE 12th International Symposium on 2014*. pp. 331–334.
7. Fan W, Bifet A. Mining big data: current status, and forecast to the future. *ACM SIGKDD Explor Newsl*. 2013;14(2):1–5.
8. Al-Hader M, Rodzi A. The smart city infrastructure development & monitoring. *Theor Empir Res Urban Manage*. 2009;4(2):87–94
9. Smart Cities using big data Analytics by K.Susmitha<sup>1</sup>, S. Jayaprada
10. Bertot JC, Choi H. Big data and e-government: issues, policies, and recommendations. In *Proceedings of the 14th Annual International Conference on Digital Government Research*. ACM; 2013. pp. 1–10.

# A STUDY OF THE INTERNET OF THINGS SENSORS & APPLICATIONS IN E-COMMERCE

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## **ABSTRACT:**

*The Internet of Things (IoT) is one of a kind of the current generally encouraging and significant innovative issues. Sensors have as of late been thinking about an exceptionally forthcoming element of logical exploration. IoT based sensors currently assume significant part since the utilization and highlights are various. Sensors assists with observing our condition of wellbeing, air quality, home security, and our generally used to screen creation measure in mechanical internet. Thus, knowing how they work and how they can utilize them to pick up data is significant. Prior the Industries and associations have been utilizing different sorts of sensors yet the creation of the Internet of Things has advances the development of sensors to a totally unique level. For water, transport, trash, environment, and so forth, the IoT sensors can be utilized successfully. This paper presents various types of IoT sensors and its different applications.*

## **1. INTRODUCTION:**

The Internet of Things (IoT), now and then called the Internet of Objects, will make a huge difference that incorporates us. The Internet influences schooling, correspondence, business, science, government, and humankind. The fundamental thought of IoT is to advance correspondence between anything from anyplace whenever through setting mindful applications can be communicated significantly. IoT works in all the fields, for example, making smart city, smart transportation framework, advancement smart industry creation and numerous different things. IoT can be gotten to whenever, any spot network for anybody, we will have availability for anything. Internet of Things can interface gadgets installed in different frameworks to the internet. At the point when gadgets/items can speak to themselves carefully. They can be controlled from anyplace. The network at that point assists with catching more information from more places, guaranteeing more methods of expanding proficiency and improving security. This new and current innovation gives numerous applications to interconnect the things with the assistance of internet. Internet of things is another innovation which gives numerous applications to associate the things to things and human to things through the internet. Every single item in the human useable frameworks can be recognized, associated with one another through the internet to take choices autonomously.

## **2. LITERATURE SURVEY:**

U.S. Thakarel et al, IoT is the eventual fate of innovation which will choose how we control and interface with our everyday gadgets and make them all the more proficiently. The plan fundamental issue with IoT is inappropriate utilization of intensity, non standard tending to plan and pool of gadget security.

Perera et al, when a sensor administration gets inaccessible at runtime, there is a requirement for an effective remuneration system to limit administration disturbance. The creator notice our future work includes improving current strategies for administration disclosure, specifically the positioning of sensor administration dependent on semantic thinking and related information on the semantic web. Another examination issue is the advancement of smart remuneration administrations dependent on an estimated investigation of sensor information, organizations and administrations in circumstances where exists pay strategies don't give arrangements.

Hemlata Channe et al, Wireless sensor networks is supposed to be experienced innovation and much work has been done on the area of horticulture. Sensors are accessible to identify and break down the various boundaries needed in the field of farming. There are numerous applications being used that utilization farming sensors. WSN designs for checking soil properties have been proposed, executed and tried. The creator notice our future work will zero in on interfacing diverse soil supplement sensors with beagle dark bone and breaking down outcomes to accomplish right and better outcomes, executing this model and gathering information from various farmlands.

Priti Bedmuttha et al, the fast expansion in the maturing populace has been a test for worldwide medical care frameworks in late many years. Numerous nations have been dynamic in rebuilding emergency clinic by advancing clinical assets and expanding the utilization of IoT home medical care. An IoT-based smart home-driven medical services stage that interfaces smart sensors joined to the human body flawlessly for physiological observing and smart drug bundling for every day drug the board.

Ms. Pradnya.A. Hukeri et al, late improvement in RFID, smart sensors, interchanges advances, and Internet conventions empower IoT. The fundamental reason is to have a smart sensors working straightforwardly to convey another class of applications without human inclusion. The current Internet, portable and machine-to-machine innovation transformation can be seen as the IoT's first stage. This sort of framework is valuable since people can commit errors and have neglected to turn off the machine under specific conditions.

Ambarish Paul et al, The conductive pathways dependent on cellulose miniature strands' three-dimensional organization show diminished electrical opposition under applied weight. The gadget is anything but difficult to fabricate and was produced using biocompatible materials. The paper-based sensors are utilized in numerous applications including pressure appraisal of mechanical hand static grasp, wrap pressure assurance and other wearable applications, for example, circulatory strain observing.

Dr. Vineet Kumar Rai et al, Novel touchy gadgets are the optical sensors. As a rule, optical sensors depend on observing the adjustment in force of at least one light bars or changes in their stages while connecting with actual frameworks. The power or interferon-metric sensors are sorted as sensors of this sort. Optical fiber sensors were created to gauge a wide scope of boundaries, for example, substance changes, stresses, electrical and attractive fields, temperatures, pressure, optical turn, relocation, and so forth.

Chia-Yen Lee et al extended environmental checking, hardware and agrarian and bio-clinical applications sensor named as Humidity sensors. For some applications, a significant factor isn't just dampness, yet additionally temperature. There is an intense specification for incorporated dampness and temperature sensors that are just fabricated and applied in numerous fields. The dampness sensors has created and tended to by Miniaturization innovation which ordinarily receives fume permeable movies as its detecting materials. There is an expanding need for least expense and appeal and dependable utilitarian stickiness sensors in the present market.

Hadeel Elayan et al proposed one of the basic plan essentials of a remote body region organization. This plan gives security to the whole framework. Information uprightness should be guaranteed where the sensors should satisfy the protection prerequisites gave by the law. Observably the fundamental software segments needs to identified and made to fulfil secure and productive remote organizations. In which the information should be accessible and utilized uniquely with made sure about verified handling sifting by recognizing approved individual in distant objections. The coordination between the equipment parts and the software program is essential to giving secure and dependable correspondence.

Hui Suo et al, referenced the Internet of Things is arising area in the current decade. The creators indicated that criticalness and utilization significance will be expanding in front coming periods. A few difficulties are exist and should be considered in IOT even it has a few mechanical highlights. Since considering security situated component of each layer actualizes is extremely troublesome and dull errand. Each layer can't be effectively actualized for instance in the protection inside and out of framework. So it is a test and significant exploration region to build security structure with the blend of control and data.

### 3. CHARACTERISTICS OF IOT IN E-COMMERCE:

- **Interconnectivity**

Concerning the IoT, the worldwide data and correspondence framework can interconnect anything.

- **Things-related administrations:**

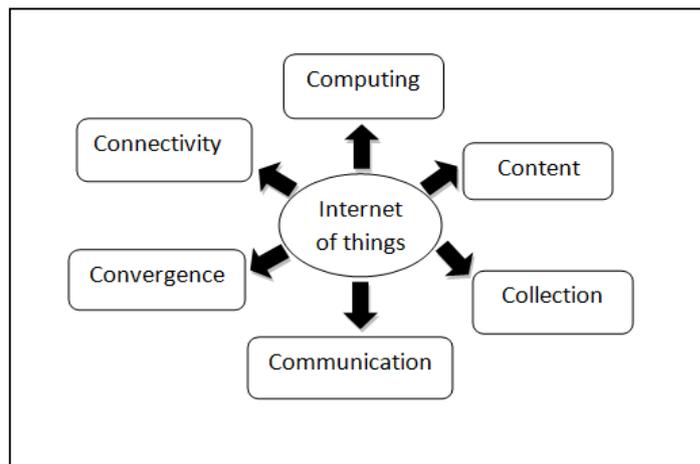
Inside the imperatives of things, for example, security insurance and semantic consistency between actual things and their related virtual things, the IoT is fit for giving things - related administrations. To convey object - related administrations inside the limitations of things, both the actual world advances and the data world will be evolving.

- **Heterogeneity:**

The IoT gadgets are not homogeneous. They are heterogeneous which depend on various stages and organizations of equipment. They can connect through various organizations with different gadgets or administration stages.

- **Dynamic Changes:**

Gadget status changes powerfully, for example dozing and awakening, interfacing or potentially separating, just as gadget setting including area and speed. Also, the quantity of gadgets can powerfully change.



- **Tremendous scope:**

The request for versatility is enormous in the network with internet. These gadgets totally need to be overseen and that speak with one another. Thus, the administration of the produced or handled information and their translation for application purposes will be much more basic. It is identifies with information semiconducting and effective treatment of sensor information.

- **Safety:**

Since we pick up favourable circumstances from the IoT, we ought not to fail to remember security. Making sure about endpoints, organizations, and getting information across everything implies making a scale - up security worldview

- **Availability:**

Availability permits openness and similarity of the organization. Availability opens up on an organization and the similarity gives the customary capacity to burn-through and produce information.

- **Sensor:**

A sensor is for the most part a gadget equipped for distinguishing changes in an environment. A sensor can gauge an actual wonder and change it into an electric sign.

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#### 4. TYPES OF SENSORS:

- **Actual Sensor:**

Actual sensors by and large measure actual amounts, for example, length, temperature pressure, power, weight, sound, and so on It very well may be characterized as a gadget that relates to physical property, called boost, and delivers a comparing electrical sign that can be estimated.

- **Compound Sensor:**

Compound sensors are generally utilized in mechanical purposes. The substance fluid changes organization primarily applied and utilized this sort of sensors. These sensors have a critical impact in creating industry based smart urban areas. It ought to likewise have to think about the insurance and environmental neighbourly smart city. The significant and included use instances of synthetic sensors just can be found in mechanical environmental checking and observing cycle control.

- **Bio-Sensor:**

Bio sensor is a compound sensor subset, yet is often treated as a different region. It is an interdisciplinary region that can't be effectively characterized with careful limits. Essentially, a biosensor is an independent scientific gadget that specifically and reversibly reacts to the fixation or movement of biological example compound species, implying that any sensor that is genuinely or synthetically worked in biological examples can be considered as a biosensor utilizing living segments or a result of living things for estimation.

- **Temperature Sensor:**

These are one of the sensors normally used to quantify a given medium's temperature or warmth. These sensors utilize various techniques to decide and measure and article's temperature. A portion of the temperature sensors required actual contact with the item while different types don't need contact as they can identify fluid or gasses that transmit brilliant energy, for example, heat spike or temperature spike.

- **Closeness Sensor:**

Sensors of closeness are the most ideal approach to identify any development. In applications, for example, security or proficiency, they are broadly utilized. These sensors are utilized as the most ideal sensor for map working to maintain a strategic distance from obstructions in exploring to a jam-packed spot or any intricate course.

- **Weight Sensor:**

A weight sensor is a sensor which serves to detect the weight and converts that into an electrical sign. The estimation of weight sensor is connects to the weight applied. These sensors produce IoT frameworks that screen new frameworks and gadgets which are pressure move.

- **Optical Sensor:**

Optic detecting innovation is utilized to identify electromagnetic energies, for example, light. It utilizes the photoelectric impact idea, says electrons will be catapulted when a contrarily charged plate of some appropriate light-touchy material is hit by a photon pillar. At that point the electrons can stream as a sign from the plate feed as a current.

- **Mugginess Sensor:**

Mugginess is water noticeable all around. Just as many assembling measures, the measure of water fume noticeable all around can influence human existence. The presence of water fume additionally impacts different physical, substance, and biological exercises and its estimation in ventures is basic since it can influence the item's quality and cost, staff's wellbeing and security. Moistness detecting is in this manner significant for modern cycles and human existence control framework. Numerous modern, horticultural and home-grown applications are significant for controlling or observing dampness.

- **Miniature Sensor:**

Miniature sensor is a tiny gadget that can gather and hand-off data about the environment. Such gadgets can quantify and send biological, warm, substance, and the other information structures to a processor, which at that point changes over the data into a significant structure for an assortment of clients to permit admittance to it.

- **Smell Detection Sensor:**

The smell recognition frameworks can be normally masterminded into four classes, for example, gas sensors, bio-sensors, gas chromatography frameworks and mixture frameworks. Other basic smell recognition instruments like electronic noses (E-noses), mass spectrometers (MS), and differential optical retention spectrometers (DOAS) are every now and again utilized sensors. The decision of any scent identification strategy is affected by a few variables like on-field send capacity, smell recognition and characterization abilities, affectability of the instruments and affectability of the instruments to the air frameworks. Among all the feasible identification strategies, Electronic nose is having exceptionally created capacities as contrast with different instruments. The presence of impedance commotion goes about as a primary obstruction for the productivity of the smell location gadgets. Fuse of gas chromatography adjacent to with deterrent channels can give an improved exactness in the smell discovery.

## 5. SENSORS USAGE IN IOT:

All sensors has had in help electrical energy range. Every sensor has their different voltage edge esteem. This electrical energy range is extremely basic on the grounds that the voltage flourishing by the board should not be more prominent than the greatest limit voltage permitted by the sensor. Clearly it is truly perceptible and critical to get the sensor information sheet circumspectly before it is association. Normally the association is made into the board to which considers the edge voltage checking to maintain a strategic distance from harm. The equivalent checking standard is pertinent for the yield signal likewise, which should be lesser than the most extreme electrical energy voltage that the board can acknowledge.

- **Applications of IoT Sensors**

The IoT sensor applications incorporates air contamination, water contamination, water observing, woodland fire identification, smart home turn of events, smart urban communities and smart industry advancement where everything can associate from anyplace to anything to make our life simpler.

### A. Smart Cities:

The Smart city ventures held in different nations, for example, Seoul, Dubai, New York, and Singapore have upheld many significant smart urban communities advancement. The smart city improvement can be viewed as the eventual fate of driving smart life, and entering the advancement of IoT innovation will turn out to be truly sensible where as the development pace of making the present smart urban communities is striking. The smart city advancement utilizing sensors requires wary and efficient arranging at all in single stages, with government strategy endorsement and residents arrangements to like the internet of things innovation.

### **B. Smart Home:**

The electronic gadgets utilized in home, for example, Television, Air conditions, Refrigerators, cell phones needs mechanization through internet. The home utilization electronic gadgets mechanization is the essential need to make smart home turn of events. The Wireless loyalty has become a piece of Internet convention network where as cell phones and registering being utilized and embraced.

### **C. Smart Health:**

Wellbeing is viewed as extremely essential one around individuals and individual's needs robotization to screen the wellbeing. Proficient and viable wellbeing checking framework required in light of the fact that an individual is difficulty from terrible wellbeing and doesn't have computerized utilization. The ebb and flow circumstance is basic and distinguished being patients is definitive in illness ID. To determine this issue a computerized IoT associated remote robotized framework makes workable for checking wellbeing focused issues. This arrangement is ideal and catches tolerant wellbeing in an ensured way.

### **D. Smart Transportation and Mobility:**

The improvement in transportation framework is the fundamental components demonstrate the country's infrastructural development. The principle application is IoT sensor based mechanized transportation framework. This framework assists with checking street condition and ready applications. The standards of publicly supporting and detecting gives the huge plan to make the smart vehicle and versatility. The IoT based smart Transportation improvement is thinks about the expense of fuel and furthermore eco-accommodating a worldwide temperature alteration include. Numerous nations financed smart transportation research tasks to make the environment more secure and smarter. Especially Lithium-particle battery execution for electric vehicles as investigated and these tasks have been supported in various.

### **E. Smart Cities:**

From a speculator point of view, a most appealing city has the best transportation, water, energy, correspondence and building accessibility, reasonability and execution for private work, amusement and play. Individuals' Internet with PCs and cell phones stretches out to the Internet of Things (IoT). The Internet vision of things is to oversee objects around us with a remarkable IP address of their own. IoT will comprise of billions of gadgets fit for detecting, conveying, ascertaining and possibly acting.

### **F. Smart Water:**

Water is one of the existence's fundamental components. Water contamination is one of the world's serious issues. The water should be observed to guarantee the protected stockpile of drinking and helpful water for different purposes, for example, farming. As of late, water levels are low and there is a drop in the lakes. It is in this manner too imperative to even think about finding the water checking and control framework arrangement. IoT is an answer for it.

### **G. Smart Agriculture:**

IoT based horticultural union innovation makes high calibre and expanded creation esteem, just as fundamentally decreasing the weight on ranchers. The information produced from GPS and smart sensors on the agrarian field explicitly utilized with the coordination of smart cultivating hardware related to Big Data investigation. The ranchers would have the option to improve crop yields and utilize water, in this way diminishing misuse of any sort of to a noteworthy level.

### **H. Security and Emergencies:**

The framework proposed can distinguish smoke, different combustible gasses and fire. This framework is equipped for furnishing the close by local group of fire-fighters with peril area organizes. This fire danger detecting framework with a precise IoT structure features a development in application to the public wellbeing and administration life uphold area.

## **6. ISSUES & CHALLENGES:**

The internet of Things is coming to fruition as a consistently present worldwide figuring network with nonstop advances in sensor and systems administration innovation. The quantity of internet-associated gadgets and enterprises is developing dramatically and having them all interconnected through wire or remote will put an amazing wellspring of data readily available. IoT sensors screen underground excavators' area and break down sensor wellbeing information to improve security measures.

- **Incredible Sensing Solution:**

IoT sensors utilize the absolute most recent innovation in the plan and production of sensors. IoT based sensors to giving an incredible detecting answer for fast advertising. The pioneer in minimal effort distant observing arrangements and remote detecting empowers you to screen/control from anyplace your business or home. It gives the least complex, fastest and most hearty approach to create Internet of Things applications. The pioneer in items for simple and implanted preparing helps make the world smarter, more secure, greener, more beneficial and more fun.

- **Smarter:**

The assortment of sensors conveys different various types of insight and information. These information depend on IoT stages work. The gathered information are shared utilizing network utilizing independent capacity which requires giving the environment extremely smarter. By consolidate a bunch of sensors and a correspondence organization, gadgets share data with each other and are improving their effectiveness and usefulness.

- **Fundamental:**

Sensors are the fundamental IoT empowering agents. The Radio Frequency Identification (RFID) labels on the Internet of Things fill three needs are distinguish things, find them and decide their environment. Smart Internet of Things Sensors affects the food inventory network that can improve the item producing measure. To screen, control and improve activities, they assume responsibility for the whole assembling measure.

**Availability:**

The enormous flood of network goes past workstations and smart phones and goes to interface vehicles, smart homes and smart urban communities. Keep on finding out about how IoT applications are changing our lives and the territories where IoT will huge affect business and society.

- **Effectiveness:**

For quite a while, various types of sensors have been utilized by ventures and associations; however the disclosure of the Internet of Things has considers sensors developments to a totally unique level. By consolidating a bunch of sensors and a correspondence organization, gadgets share data and improve their effectiveness and usefulness.

## 7. CONCLUSION:

IoT's developing fame is expanding consideration in IoT gadgets and applications toward security issues. In this paper, we overviewed on various types of IoT sensors and its applications. In IoT gadgets and existing sensor the board frameworks adjust in product IoT, we introduced a thorough outline of sensors. There is incalculable utilization of IoT sensors application in all fields including clinical, fabricating, mechanical, transport, training, administration, and mining, and so on the utilization of sensors in IoT gadgets unavoidably builds the gadgets' usefulness. For instance, a few late endeavours have been made to misuse the security of IoT gadget through their sensors. Along these lines, security is significant in IoT based sensors. The blend and melding of the multitude of sensors make the total stage in different applications extremely smarter one. The idea of gathering smart sensors information assortment and examination makes the IoT exceptionally smarter and IoT gets smarter later on advancements.

## REFERENCES:

1. U.S. Thakare and S.M. Borkar, —Implementation of WSN's Device Addressing, Data Aggregation and Secure Control In IoT Environmentl, International Journal of Engineering Development and Research (IJEDR), Vol. 5, Issue 1, ISSN: 2321- 9939, 2017.
2. P. Christen, D. Georgakopoulos, A. Zaslavsky and C. Perera, Context Aware Computing for The Internet of Things: A Surveyl IEEE Communications Surveys & Tutorials, Pages. 1- 41, 2013.
3. Dipali Kadam, Sukhesh Kothari and Hemlata Channe, Multidisciplinary Model for Smart Agriculture using Internet- of-Things, Sensors, Cloud-Computing, Mobile-Computing and Big-Data Analysisl, IJCTA, Vol 6, Issue. 3, Pages. 374-382, May- June 2015.
4. T. R. Patil, Satyajit Gargori, Nisha Jain, Priti Bedmuttha and Yamini Thigale, —A Health-Iot Platform Based On The Biosensor And Intelligent Medicine Boxl, International Journal of Computer Science and Mobile Computing, Vol. 6, Issue.4, April 2017.
5. Mr.P.B.Ghewari, A.Hukeri and Ms. Pradnya, —Review Paper on Iot Based Technology, International Research Journal of Engineering and Technology, Vol. 4, Issue 1, January 2017.
6. Ravinder Dahiya, Md. Abdul Kafi and Ambarish Paul, —Paper based Pressure Sensor for Green Electronicsl, IEEE Sensors, 2017.
7. Dr. Vineet Kumar Rai, —Temperature Sensors and Optical Sensorsl, Springer-Verlag, 2007.
8. IOT Sensors And Applications by Dr. J. Jegathesh Amalraj, S. Banumathi, J. Jereena John
9. Gwo-Bin Lee and Chin-Yen Lee, —Humidity Sensors: A Reviewl, Vol.3, 1-14, 2005.
10. Sunil M Patel and Keyur K Patel, —Internet of Things-IoT: Definition, Characteristics, Architecture, Enabling Technologies, Applications & Future Challengesl, International Journal of Engineering Science and Computing, Vol. 6, Issue No.5, 2016.

# BIG DATA AN OPPORTUNITY FOR E-COMMERCE

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## 1. INTRODUCTION:

The digital universe of data is expected to rise 61 percent to 175 zettabytes by 2025, according to an IDC survey. E-commerce forms a significant part of this digital universe, accumulating social media activity of consumers, geolocation services, profiles of web browsers, and abandoned online shopping carts.

While it is nice to collect customer data, analysing the data is what gives a distinct advantage to e-commerce businesses. In the sense of current business dynamics, e-commerce companies using big data analytics will comprehend the buying behaviour of their clients. These businesses, in turn, adapt their marketing specifically to consumer desires, produce fresh goods that meet customer expectations and ensure that staff provide the quality of service requested by customers.

Big data will obviously have an important influence on e-commerce.

**This Paper will highlight seven ways big data can foster positive change in any e-commerce business:**

- Elevated shopping experience
- More secure online payment
- Increased personalization
- Optimized pricing and increased sales
- Dynamic customer service
- Generate increased sales
- Predict Trends, forecast demand

### *1.1. Elevated shopping experience*

In order to fuel predictive analytics, e-commerce companies have an infinite supply of data that anticipates how consumers will act in the future. The number of clicks per page, the average number of items people add to their shopping carts before checking out and the average amount of time between a visit to the homepage and a purchase are monitored by retail websites. Companies may examine demographic, age, style, scale, and socioeconomic details if clients are signed up for a rewards or subscription programme.

Predictive analytics can help businesses implement new strategies to avoid the abandonment of shopping carts, reduce buying time, and cater to emerging trends. E-commerce businesses often use this knowledge to reliably forecast inventory requirements with shifts in seasonality or the economy.

The largest PC vendor in the world, Lenovo serves customers in more than 160 countries. In order to develop the customer experience and separate the business from the competition, Lenovo had to consider the customer experience.

### *1.2. More secure online payments*

Clients need to know that their payments are safe in order to have a peak shopping experience. Analysis of big data will detect atypical behaviour in spending and alert clients when it occurs. Companies may set up alerts within a limited time frame for various fraudulent activities, such as a series of different transactions on the same credit card or several payment methods originating from the same IP address.

Likewise, on one unified platform, several e-commerce sites now provide many payment methods. "Big data analysis can determine which payment methods work best for which clients, and can measure the effectiveness of new payment options such as "bill me later. To reduce the odds of an abandoned shopping cart, some e-commerce sites have introduced a simple checkout experience. The checkout page offers clients the opportunity to position an item on a wish list, select a choice to "bill me later," or pay with several different credit cards.

### *1.3. Increased personalization*

Big data will cultivate a more personalised shopping experience, in addition to allowing clients to make safe, easy payments. In their purchase decisions, 86 percent of customers state that personalization plays an important role. Millennials are particularly interested in shopping online, and believe that personalised suggestions would be received.

E-commerce businesses will create a 360-degree view of the client using big data analytics. This view enables e-commerce businesses to segment consumers on the basis of their gender, location, and participation in social media.

Companies can create and send emails with personalised discounts with this information, use various marketing techniques for different target markets, and introduce products that speak directly to particular customer groups.

In fact, this tactic is cashed in by many retailers, offering members loyalty points that can be used on future purchases. E-commerce businesses can sometimes choose multiple dates during the year to offer additional loyalty members

#### ***1.4. Optimized pricing and increased sales***

Customers enjoy good offers beyond reward schemes, safe payments, and smooth shopping experiences. Big data analytics are beginning to be used by e-commerce firms to determine the fairest price for individual consumers to bring in increased revenue from online transactions. Early access to promotions can be provided to buyers with long-standing loyalty to a brand, and customers may pay higher or lower rates depending on where they live and work.

One of Europe's most popular e-commerce companies is Otto, Germany's largest online store for home furnishing goods. Otto has to contend against giants like Amazon to retain the title. In one database, Otto integrated its multiple data silos, making it easier to create 360-degree customer profiles, evaluate competitor data and assess the best performing distribution channels. Big data can now be easily used by Otto to refine pricing, develop more personalised marketing strategies and sharpen their on-site ad bidding strategy.

#### ***1.5. Dynamic customer service***

Customer loyalty is essential to the retention of customers. Without outstanding customer service, even businesses with the most favourable costs and goods suffer. Business.com reports that attracting new customers costs 5 to 10 times more than selling to a new client. What's more, existing clients invest up to 67% more than new clients.

Companies focused on offering the best customer support are growing their chances of successful referrals and retaining recurring sales. For any e-commerce company, keeping customers happy and pleased should be a priority. But how is customer experience enhanced by Big Data? Big data will expose product delivery issues, levels of customer satisfaction, and even social media brand perception. Big data analytics will actually pinpoint the precise points in time where the understanding or satisfaction of consumers has changed. When businesses have identified areas for improvement, it is easier to make sustainable improvements to customer service.

#### ***1.6. Generate increased sales***

Big data enables e-retailers to tailor their suggestions and coupons to meet consumer requirements. High traffic benefits from this customised experience of the consumer, yielding greater benefit. Big customer data can also assist e-commerce firms to run accurate marketing campaigns, have suitable coupons, and inform consumers that they still have something in their cart.

Domino's Pizza is an exceptional example of the use of big data to maximise revenue by an e-commerce company. The "AnyWare" ordering software by Domino enables consumers to buy pizza from their smartwatches, TVs, vehicles, and social media. For Domino's pizza sales, making sales so quick and convenient was a vital gain. However it was inconceivable without advanced technology to merge data from disparate sales sources in real time.

Using a broad data network, Domino's data from 85,000 unstructured and structured data sources is easily incorporated. With a single outlook on clients and worldwide activities, Domino's can now c

#### ***1.7. Predict trends and forecast demand***

Catering to the needs of a consumer is not just a matter of the present state. E-commerce relies on the right inventory being saved for the future. Big data can help businesses prepare for new trends, sluggish or potentially booming periods of the year or organise large-scale event marketing campaigns.

Large databases are collected by e-commerce firms. E-retailers can schedule inventory accordingly, stock up to predict peak times, streamline overall business processes, and forecast demand by analysing data from previous years. For example, during peak buying hours, e-commerce sites may advertise massive markdowns on social media to get rid of excess items.

E-commerce sites can also deliver extremely limited-time discounts to maximise pricing decisions. With big data analytics and machine learning, knowing when to offer discounts, how long discounts should last, and what discounted price to offer is far more detailed and accurate.

## **2. BIG DATA AN OPPORTUNITY FOR E-COMMERCE:**

Big Data provides massive e-commerce possibilities because it allows the online e-commerce shop to closely connect and analyse its digital customers. If the big data is used correctly in e-commerce, "a before and "a after in your online shop experience could make a difference. The E-commerce European Conference held in Madrid in October

2012, reported that big data would be a growth factor that would move \$34,000 million in 2013, using a method for analysing microdata. In 2015 the projections for the study and management of big data will also provide 4.4 million direct jobs. The White House revealed in March 2012 the National Big Data Initiative for Big Data Re-searchable projects worth over \$200 million. A two-year, Big Data Public Private Forum is being sponsored by the European Commission to direct European Commission action for the successful implementation of the big data economy. The next few points are how big data generates e-commerce opportunities:

### 2.1 Personalization of products for customers

Customized customer support online shopping demand. More and more tailored product prices are also required. Big Data helps marketers to evaluate consumer experiences on all platforms, including social, mobile and online, to decide how they use the goods they have purchased and want to buy. For example, e-commerce should include directives for your complement chain so some consumers can choose features like colour or wired versus wireless with a configurable product. A separate group of consumers could get eco-friendly goods and value added services like gift packaging could be given to another segment. All this can be achieved in real time, using big data to adapt the available goods to the target consumer segments.

E-commerce companies can process this information to segment clients, thereby promoting individual content and promotions by gathering more data from consumers from different points of contact such as loyalty programmes, visitor browsing habits, and past buying activity. This customised content is available through social networking sites, e-mail and online publicity for its customers. Personal purchasing behaviour helps visitors to catch items that are interested in Facebook by clicking on the product that consumers make while visiting an advertisement.

### 2.2 Dynamic pricing for customer

After the collection and analysis of data generated by big data, a reasonably detailed profile can be defined for each customer. This consumer profile offers insights into the price the customer will take again and convince him to purchase another product from the web. This has proved to be the easiest way to attract customers. The e-commerce web, for instance, will determine whether a discount of 10 or 20% for Rs is the better for each individual customer.

In order to decide the best sales price, an e-commerce company may use dynamic pricing to compete with other e-commerce companies, which includes the inclusion of data from a number of sources, including competitive pricing, regional preference, product sales, and customizations. E-commerce giant like Amazon already has this feature, which has a huge competitive advantage for its company.

### 3. CONCLUSION:

The e-commerce industry has already been profoundly influenced by Big Data and will undoubtedly continue to do so. 99 companies expect 95 percent of all transactions to be made by 2040 via e-commerce. Big data analytics can be used to update their copy to plan, reinforce their self-service customer support posts, and analyse surveys. Not only should that, e-commerce companies plan for seasonal inflows, emerging patterns, and consumer tastes.

Although big data can be the most effective tool for an e-commerce company, only 0.5 percent of big datasets are used. Traditional on-site systems do not store or process the size and complexity of today's data sets. But what should be done by a promising e-commerce company?

E-commerce companies are turning to cloud-based Big Data analytics to leverage the strength of big data. Cloud-based tools can easily and efficiently store, transform, and analyse information. Talend Data Fabric is a robust application suite that automates integration, making it simple to analyse all information

### REFERENCES:

1. Tao, S., Manolopoulos, V., Rodriguez, S. & Rusu, A., 2012. Real-Time Urban Traffic State Estimation with A-GPS Mobile Phones as Probes. *Journal of Transportation Technologies*, 2(1), p.22.
2. Tao, S., Manolopoulos, V., Rodriguez, S. & Rusu, A., 2012. Real-Time Urban Traffic State Estimation with A-GPS Mobile Phones as Probes. *Journal of Transportation Technologies*, 2(1), pp.22-31.
3. The Center for Media Justice, 2013. Consumer, Big Data and Online Tracking in the Retail Industry. Center for Media Justice.
4. Ververidis, C. & Polyzos, G., 2002. Mobile marketing using a location based service. In *Proceedings of the First International Conference on Mobile Business*. Prentice-Hall. pp.1-8.
5. Wielki, J., 2013. Implementation of the Big Data concept in organizations – possibilities, impediments and challenge. In *FEDCSIS*, 2013.
6. Yi, J. & Niblack, W., 2005. Sentiment mining in WebFountain. In *Data Engineering, 2005. ICDE 2005. Proceedings. 21st International Conference on*. IEEE. pp.1073--1083.

# BIG DATA ANALYTICS IN E-COMMERCE

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## ABSTRACT:

*Big Data Analytics (BDA) in e-commerce has become increasingly relevant in recent years. However, the idea remains poorly explored, hindering its theoretical and practical growth. In the e-commerce portion of this article, BDA discusses a structural re-vision of literature. This paper provides a framework for analysis that examines the BDA e-commerce landscape's meanings, distinctive features and forms of company and challenges. It also sparks wider debates on future research issues and theoretical and practical opportunities. Overall, the results synthesise various BDA principles (e.g. big data meanings, forms, existence, corporate value, theories) that provide a better insight into e-commerce cross-cutting analytical applications.*

**Keywords:** *Big data analytics, E-commerce, Business value.*

## 1. INTRODUCTION:

In recent years, both academia and the e-commerce industry have seen an increase of interest in big data. The explosion is driven by a 5-6 percent higher efficiency than the rivals of electronic companies that inject big data analytics into their value chain (BDA) (McAfee and Brynjolfsson 2012). A new analysis by BSA Software Alliance in the USA shows that BDA contributes 10% or more to growth in 56% of businesses (Columbus 2014). 91% of Fortune 1000 companies therefore invest in BDA ventures, up 85% compared to the previous year (Kiron et al. 2014a). BDA will further reinforce these e-commerce agreements, by allowing informed decisions based on vital insights, by using new internet-based technology (e.g. real-time service to customers, dynamic pricing, customised services or enhanced interaction) (Riggins 1999) (Jao 2013). In particular, within the framework of the e-commerce environment "big data allows traders to track the behaviour of every user and connect points in order to determine how best to convert customers once into repeat buyers" (Jao 2013,p.1). Big data analysis (BDA) enables e-commerce companies to make better use of data, increase the conversion rate, and empower customers (Miller 2013). From the e-commerce transaction cost theory (Devaraj et al. 2002 and Williamson 1981), the BDA can support online businesses by enhancing business cost efficiency transaction (e.g. online contact with buyers and sellers), cost efficiency management transactions (e.g. process efficiency - Amazon Recommendation algorithms) and time cost efficiency algorithms (e.g., searching, bargaining and after sale monitoring). Based on a resource-based view (RBV) (Barney 1991), we argued that BDA is a specific skill to support business needs in a high-performance enterprise phase, such as loyal and lucrative customer recognition, price optimisation, quality detection of issues or the decision about the lowest possible inventory level (Davenport and Harris 2007a). In addition to the RBV this study also looks at BDA from the connection ontology of socio materialism, which claims that various organisational skills (e.g. management, technology and talent) are formally intertwined in achieving firm success (Orlikowski 2007) and are mutually supportive (Barton and Court 2012).

The aim of this paper is to present the definition of big data in the sense of e-commerce in detail. in general. This paper has been organised in five main parts. First in Section 2, our methodological design is clarified and our systematic review findings are discussed. When this information is collected.

## 2. BIG DATA AND THEIR DISTINCTIVE CHARACTERISTICS IN THE E-COMMERCE ENVIRONMENT:

The field of e-commerce now bubbles with vast amounts of data used to solve business problems. The use of big data in e-commerce is rising "[to the social network, internet, mobile phone and all kinds of new technology-intensives which create and capture data," according to Kauffman et al. (2012, p. 85). [Translation] Big data now allow e-commerce firms to reduce costs and to deliver benefits without difficulty by means of cost-efficient storage and processing ability and cutting-edge analytical tools. Analysis for collecting big information, however, differs in many respects from tractional data. Big data can be differentiated easily from the standard type of data used in analytics because of its special nature (i.e. voluminous, diverse, speed-ity and veracity) (see Table 4). The following parts address these elements and their effect on e-commerce in turn.

- ❖ 2.1 Volume refers to the vast amount of data that can be processed using big data techniques and is generated.
- ❖ 2.2 Velocity refers to both the frequency at which the data is produced and the data duration. It is the velocity at which data is generated, generated, generated, or refreshed.
- ❖ 2.3 Diversity The majority of the information produced today is either semi-structured or unstructured, comprising 80% of the total data. Variety extends to the various data forms and sources. Data may be in the

form of images or text from social networks or mobile devices, web logs, streamed video or audio in big data systems.

- ❖ 2.4 Veracity The accuracy of data relates to veracity. When it's not accurate, data is of no use. It can be full of stereotypes; abnormalities and it can be unreliable. One of the ill-fated features of big data is this. The veracity (confidence or trust in the data) drops as any or all of the above properties increase. Veracity refers more to the data source's provenance or reliability, its meaning, and how important it is to the study centred on it.
- ❖ 2.5 Variability applies to data with a constantly evolving context. This is often the case as data collection depends on language processing. Big data is also variable due to the multitude of dimensions of data arising from many different types and sources of data.
- ❖ 2.6 Validity relates to how precise and accurate the knowledge is for its intended use. An approximate 60 percent of a data scientist's time is spent cleaning their data before being able to do some research, according to Forbes ([www.forbes.com](http://www.forbes.com)). The average company loses \$13.5 million annually, according to figures, due to bad data (Source: <http://www.firstpost.com>)
- ❖ 2.7 Risk Vulnerability Big data brings new questions about security. The knowledge produced is fragile and there have been several big data breakdowns. As mentioned by CRN: "a hacker called Peace posted data on the dark web to sell, which allegedly included information on 167 million accounts and ... 360 million emails and passwords for some organisations." (Source: <https://upside.tdwi.org>)
- ❖ 2.8 Volatility Until the data is deemed obsolete, historic, or no longer usable, how old does it need to be? How long is it appropriate to hold data for? The variance needs to be closely looked at due to the velocity and amount of big data. (Source: <https://upside.tdwi.org>) (in German) Visualization
- ❖ 2.9 Visualization of data refers to recognising the meaning of knowledge by putting it in a visual context. With data visualisation tools, patterns, trends and associations that may go undetected in text-based data can be revealed and recognised easier.
- ❖ 2.10 Valence In big data systems, Valence refers to the degree of interconnectedness and interdependence in which a small change in one or few components may have a small or significant cascading impact on other components. The more data is associated, the higher its valence. Valence's most significant feature is that the connectivity of data improves with time. (Source: <https://gist.github.com>)
- ❖ 2.11 Value the most significant aspects of big data are the data derivation of meaningful business value. Big data may find tremendous value by better understanding clients, targeting them, improving the process and enhancing the efficiency of businesses. Value that involves a wide volume and variety of easily accessible data and offers quality analytics that make informed choices possible. Big data analytics' biggest challenge is to generate business value from this eruption of big data.

These huge amounts of data eCommerce companies are described as voluminous to allow them to improve their decision-making (McAfee and Brynjolfsson 2012). BDA uses large volumes of data, which require a huge amount of storage and include a large number of records as demonstrated by Russom in 2011. In fact, BDA contains large quantities of data that decision makers use to make strategic decisions (usually expressed in petabytes and exabytes). Data captured in the Big Data setting is often unstructured and may include mobile technology video, image, or data. Big data is also unlikely to be safe and error-free. Although decision-makers face additional challenges in getting data ready for use, Big Data allows e-commerce companies to make their own decisions in real time (Kang et al. 2003). Amazon has developed sophisticated advice engines that provide 35% of revenue and customer service to superior customer loyalty and dynamic prices that adapt prices to competitive sites on a quarter-century-second basis for example using a vast volume of structured and unstructured data (Goff et al. 2012). Likewise, online film retailer Netflix analyses more than 1 billion reviews to evaluate the tastes and inventory of the consumer (Davenport and Harris 2007b). Many e-commerce companies (e.g. Amazon, eBay, Expedia and Travelcity) are using vast quantities of social media information to explore the possibilities of marketing promotional goods in real time, including photographs, notes, blog posts, web links and news articles (Manyika et al. 2011).

### 3. BUSINESS VALUE OF BIG DATA ANALYTICS FOR E-COMMERCE FIRMS:

BDA's ultimate challenge is to create market value from this Big Data explosion (Beath et al. 2012). The word 'worth' in connection with large data means that the study of big data by extraction and transformation can produce economically dignified insights or benefits. Business importance of BDA as transactions, information and competitive advantages to e-commerce companies is consistent with Wixom et al. (2013). Although transaction value is aimed at enhanced performance and cost savings, knowledge value illuminate's decision-making in real time and strategic value addresses the creation of competitive advantages. For instance, managers could draw on a global business value through the injection of analytics into e-commerce by meeting their customers' needs (79%); the development of new products

and services (70 percent) (Columbus 2014). Table 6 shows that a significant number of e-commerce companies in the world will increase their market worth by using Big Data Analytics to maximise transactional, informational and strategic value.

An online retailers' giant, Amazon is a classic example of how big data is used to boost market value and company results. Indeed, via analytics (for example by the Recommendation Engine) about 30% of its sales were produced (The Economist 2011). Kiron et al. (2012b) also announced that in the last two years Match.com has been able to produce an increase to more than 50 percent in sales and that the company user base has reached 1.8 million in its core market. The IBM case study (IBM 2012) showed that greater data sharing and interpretation could enhance the results of patients. Premier Healthcare Partnership, for instance, has been able to decrease expenditures by US\$2.85 billion. Schroeck et al. (2012) found that each year Automercados Plaza's food chain has increased its revenues by approximately 30 per cent and increased its profitability by a total of US\$7million through information incorporation. Moreover, by anticipating prices cuts to sell perishable goods on time the company has avoided losses for more than 30% of its products. In addition to adding financial value for companies, the use of big data may lead to non-financial aspects such as customer loyalty, customer retention and other aspects.

Improvement in organisational procedures. The United Parcel Service (UPS) investigates patterns of use and data for grievances in order to reliably predict consumer defects as provided by Davenport (2006).

This process leads to a substantial increase in the retention of customers for the company. In the same spirit, LaValle et al. (2011), an online car company, building a sample customer based on big data accompanied by the use of analytical algorithms to predict risk of attrition, combined with a consumer risk recognition, were able to establish exact retention strategies. As a result, this retention policy has opened the door to the company to yield just a single brand hundred million dollars. Because e-commerce companies can communicate more often in real time with customers than companies that do not have an e-commerce site, they must use big data for different purposes. Therefore, we present six mechanisms for increasing realistic business values in the data economy, based on the related theories in e-commerce the current study highlights. Customisation Big data is first applied to e-commerce companies by offering customised service or custom goods (Koutsabasis et al. 2008). Studies have shown that customers generally choose to shop on different channels with the same retailer and that big data can be customised in real time from these diverse channels (Kopp 2013; Mehra 2013; Miller 2013). Real-time data processing helps businesses to deliver tailored services including special content and consumer promotions. These tailored services also help businesses distinguish existing customers from new customers and deliver promotional services accordingly (Mehra 2013). Personalization will boost revenue by 10 percent or more and offer five to eight times the ROI of marketing expenses, Liebowitz (2013) says. In this link, Bloomspot has examined credit card details from its customers to track and provide them with rewards by monitoring deals and benefits to help increase customer loyalty (Miller 2013). Wine.com has increased its revenue significantly through customised e-mail commercialization (Zhao 2013). Motorcycling.com is an example of a business that now sends out a tailor-made deal to each customer (for example, by using data from customer search habits, login counts, past purchases): this resulted in revenue growth of 133%, while on-site interaction for users increased by around 200% (Jao 2013).

#### 4. CONCLUSION:

Due to the challenges and opportunities created by the Information Revolution, big data analysis (BDA) emerged into the new boundary of innovation and competitiveness in the broad variety of e-commerce environments. Big data analysis (BDA) has enhanced the value of e-commerce companies by translating data into insights into robust decision making, and solutions to company challenges through the complexities of individuals, processes and technologies. This is a systematic process that addresses data, sources, competencies and systems to build a competitive advantage. BDA has already been welcomed and enjoyed tremendous success in leading e-commerce firms such as Google, Amazon, eBay, ASOS, Netflix and Facebook. This study provides a valuable starting point to apply BDA in emerging e-commerce research by systematically examining and establishing taxonomies on the main aspects of BDA. The study shows the best practises that can create BDA capabilities and shape them. Furthermore, the study shows the BDA application can optimise commercial value by promoting the prevalence of use, once its reach has been well defined; distinct characteristics and types of big data well-understood and challenges addressed appropriately.

#### REFERENCES:

1. Agarwal, R., & Dhar, V. (2014). Editorial—big data, data science, and analytics: the opportunity and challenge for IS research. *Information Systems Research*, 25, 443–448.
2. Agarwal, R., & Weill, P. (2012). The benefits of combining data with empathy. *MIT Sloan Management Review*, 54, 35.

3. Allen, B., Bresnahan, J., Childers, L., Foster, I., Kandaswamy, G., Kettimuthu, R., Kordas, J., Link, M., Martin, S., Pickett, K., & Tuecke, S. (2012). Software as a service for data scientists. *Communications of the ACM*, 55, 81–88.
4. Bankston, K.S., Soltani, A., (2014). Tiny constables and the cost of surveillance: Making cents out of United States V. Jones. *Yale Law Journal Online* 123.
5. Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17, 99–120.
6. Barrett, M., Davidson, E., Prabhu, J., & Vargo, S. L. (2015). Service innovation in the digital age. *MIS Quarterly*, 39, 135–154.
7. Barton, D. (2012). Making advanced analytics work for you. *Harvard Business Review*, 90(78–83), 128.
8. Barton, D., & Court, D. (2012). Making advanced analytics work for you *Harvard Business Review*, 90, 78.
9. Beath, C., Becerra-Fernandez, I., Ross, J., & Short, J. (2012). Finding value in the information explosion. *MIT Sloan Management Review*, 53, 18–20.
10. Benedettini, O., Neely, A., 2012. Complexity in services: An interpretative framework, POMS 23rd annual conference.
11. Bennett, P., Giles, L., Halevy, A., Han, J., Hearst, M., Leskovec, J., 2013. Channeling the deluge: research challenges for big data and information systems, *Proceedings of the 22nd ACM international*.

# BIG DATA AS A TOOL FOR E-COMMERCE

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## 1. INTRODUCTION:

Today, the Internet has become an integral component of business and its remarkable effect on the arrangements of organisations is evident. This has contributed to an enormous development of Indian e-commerce. In 2009, India's e-commerce industry was worth almost \$3.9 billion, rising to \$12.6 billion in 2013. By 2020, India is projected to produce \$100 billion in online retail sales, according to the Indian Institute of E-Commerce. To reach a size of \$80 billion by 2020, the sector will have to expand at 45% CAGR fr.

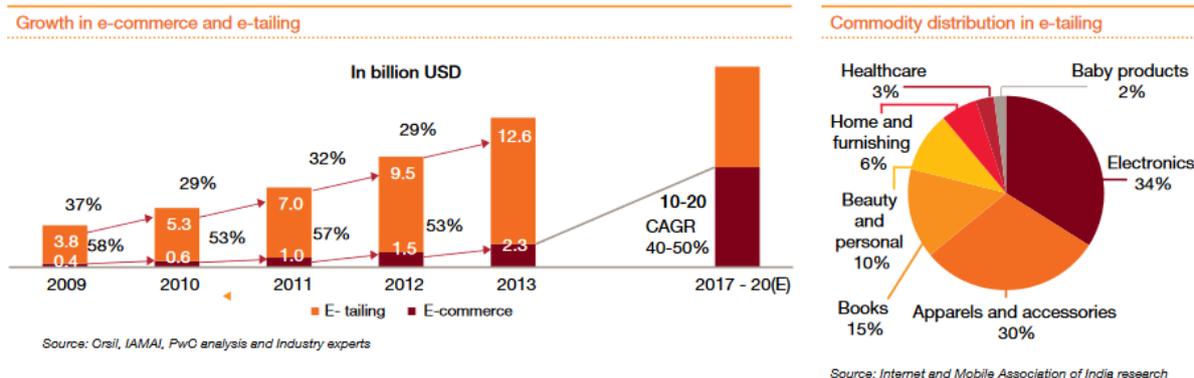


Fig.1 Growth in e-commerce and e-tailing (Source: <https://www.pwc.in>)

A possible way for e-commerce companies to expand and maintain market value is through the use of big data applications that can be grouped into personalization, dynamic pricing, customer support, customer behaviour prediction, visibility of the supply chain and fraud management [1]. Thus an organisation with a clear consumer focus is considered to outpace its competition because it better understands customer needs, regulates products and services and therefore meets customer needs [22].

- Through the use of Big Data Analytics, e-commerce companies achieve:
- For businesses that use Predictive Analytics, 73 percent higher revenue than those that don't
- 45 percent of online shoppers are likely to purchase customised reviews on a website.
- 60% growth in sector margins and a 1% rise in labour productivity (McKinsey)
- According to Wrik, 45 percent of online shoppers are more likely to shop on a platform that provides customised advice (invest consulting) (Source: [www.euroitgroup.com](http://www.euroitgroup.com)),

TABLE 1 GLOBAL GROWTH IN E-COMMERCE AND BIG DATA ANALYTICS

Year	Growth in the number of e-commerce customers worldwide (in millions)	Growth in e-commerce sales per customer worldwide (in US\$)	Growth in big data analytics (BDA) market worldwide (in billions)
2011	792.6	1162	7.3
2012	903.6	1243	11.8
2013	1015.8	1318	18.6
2014	1124.3	1399	28.5
2015	1228.5	1459	38.4
2016	1321.4	1513	45.3

Source: Big data analytics in E-Commerce [1], Adapted from e-marketer



*process and enhancing the efficiency of businesses. Value that involves a wide volume and variety of easily accessible data and offers quality analytics that make informed choices possible. Big data analytics' biggest challenge is to generate business value from this eruption of big data. [16].*

### **3. AIMS OF THE PAPER:**

What role does big data analytics play in the e-commerce world in creating business value is emphasised by the research question initiated by this conceptual study? To build an awareness of the effect of Big Data Analytics on the development of value for e-commerce companies. 3.1 Define Big Data Analytics application areas for E-Commerce functions. 3.2 Identify multiple sources of Big Data in E-Commerce 3.3 Identify the market importance of Big Data for E-Commerce firms 3.3.

**3.1 Application of big data analytics for E-Commerce functions** Akter, S., & Wamba, S.F., 2016, in their paper, explained the most important applications of big data: personalization, dynamic pricing, customer service, predicting customer behavior, supply chain visibility, and managing fraud. [1]

#### *3.1.1 Personalization*

Big data analytics enables the provision of personalised service or tailored goods for customers[1]. For particular segments, it provides personalised content and promotions. Personalization will boost revenue by 10 percent or more and provide five to eight times the ROI on marketing expenses, according to Liebowitz, 2013 [22].

#### *3.1.2 Dynamic Pricing*

E-commerce companies must be diligent and lively in order to draw new consumers while setting sustainable product prices [23]. In order to purchase on their platform, e-commerce companies must actively control the consumer, which includes setting a fair price [23]. Dynamic pricing is necessary since the majority of goods compete with other sites for the price offered.

#### *3.1.3 Enhanced Customer Service*

Online retailers can use Big Data to provide an exceptional customer service experience. Providing excellent customer service can lead firms to achieve competitive advantage, even though the product or service is in the higher price segment [25].

*3.1.4 Predictive Analytics to predict customer behaviour* The analysis of events before the use of big data takes place[28] refers to predictive analytics. Big Data can allow you to forecast demand for products, customer behaviour patterns, and supply chain mechanics. Using Big Data, based on the combination of past sales data and anticipated customer preferences[1], will make it possible to predict future sales revenue.

*3.1.5 Fraud Detection and handling* Big Data can help track fraudulent activity with assistance. It leads to a quicker resolution if fraud is identified in real-time. When fraud detection patterns are combined with real-time detection powered by Big Data, the system collects the requisite information to identify & negate fraudulent activities. E-Commerce companies may evaluate data at an aggregate level to detect fraud[21] by providing the right IT infrastructure. In addition e-commerce companies can detect fraud in real time by integrating transaction data from mobile apps with customer order history, site logs, social feeds, and geospatial location data [1].

*3.1.6 Supply Chain Visibility* The service to monitor your items ordered online while the goods are still in shipment has become the norm in the current market scenario [1]. Customers demand particular details about the supply chain, such as the exact availability, status and position of their orders. This includes heavy use of data resources as E-Commerce companies have several third parties such as warehousing and transportation providers in their supply chain. In order to reliably provide planned delivery schedules to customers [28], businesses need to be able to quickly obtain details from all interested parties on all goods.

*3.1.7 Big Data and Firm Performance* Big data analytics implementers are correlated with improved company efficiency. The businesses that invested in big data [5] had higher levels of labour efficiency and consumer reactivity than those that did not. This is explained by the finding that big data technology can improve the returns of management activities by improving the depth of insight that firms gain from interactions with consumers, rivals, and suppliers, as well as the pace at which they react.

### 3.2 Different sources of Big Data in E-Commerce:

Machines, individuals and organisations often produce big data. a. Machine-generated data is also referred to as data generated from real-time sensors. b. Human data created by the use of social media data, status changes, tweets, images, and others are referred to data generated by human data. c. More conventional forms of data, including business transaction records, are referred to as organizationally generated data. Data is created from the following sources, as stated in the research paper[1]: a. Data on sales or business activities: organised data from retail transactions, customer profiles, frequency and amount of delivery, purchase of goods and use of services, type and frequency of complaints from customers b. Click-stream data: site click-stream data, content on social media, online ads (tweets, blogs, postings on the Facebook wall, etc.) c. Video data: retail video data and other settings d. Voice data: Voice data from telephone calls, call centres, customer service Big data can be structured, semi-structured, or unstructured. Real data value comes from integrating and evaluating these streams of big data sources with each other in order to create new insights.

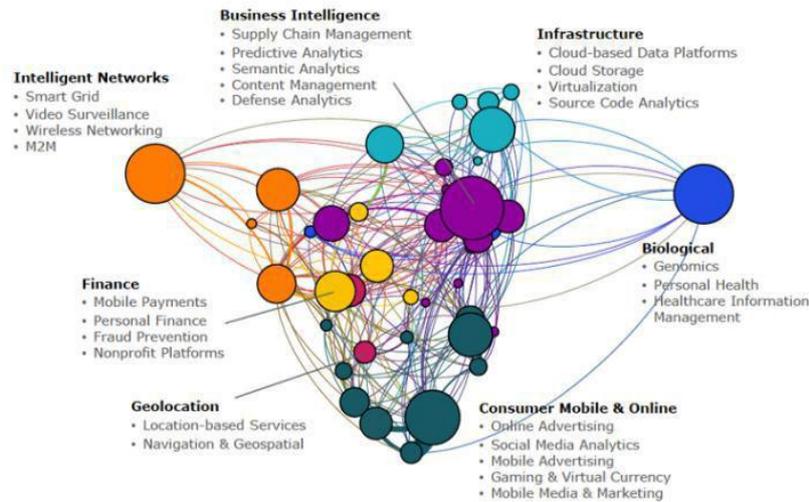


Fig.3 Enabling Technologies associated with big data applications (Source: Imarticus Learning)

- The following can be regarded as the primary sources of big data generation:
- Facebook, LinkedIn, Twitter and blogs are social media and networking sites.
- Internet transactions by purchasing/selling (covering manual and automated), EFT and EDI banking operations.
- Calls, messaging, voice and video messengers, location mapping, use of transaction software, electronic devices (mobile, tabs).
- Using the Internet of Things, sensors and network designs, Internet networking with hardware designs, sensors and satellites,

### 3.3 Business value of big data for E-Commerce companies:

For e-commerce businesses, what makes big data valuable? Using Big Data helps businesses to create better models that deliver more reliable results. Big data helps you to hear the client's voice as opposed to customers at large. Many e-commerce businesses use this data to personalise their consumer communications, which in turn leads to customer preferences and happy customers being met. It is noted that businesses will turn into "smart enterprises" through a clear study of Big Data, which will increase their efficiency and competitiveness in the market, thereby maximising their operations on accurate information from different sources combined[30]. In order to achieve a competitive position, there is an imperative need for a better partnership between companies within the strategic network. By allowing access to information, technology, markets and activities that are perceived to be resources, having strategic networks will create value for e-commerce companies. Strategic networks also include risk sharing, the ability for easier scale and reach, information sharing and learning [31]. Value can be extracted from the attenuation of ambiguity, complexity, asymmetry of information, and bargaining conditions of small numbers. As the the efficiency of a transaction, value development also occurs, as increased efficiency lowers costs [31]. It is now popular online to personalised surfing practise. E-Commerce companies recommend items based on consumer buying history or share the interests of other consumers who have purchased products that we are considering (Example: When searching for a hotel on many travel websites, it reveals how many people are actually viewing the same hotel and how a scalable and high-performance Big Data analytics platform is vital to creating value for any travel website It can extent help you to:

- Discover hidden patterns of data and offer meaningful insights
- Improve your decisions, by stirring information for decision makers
- Automate the business processes

In 2012, a research firm affiliated with the Massachusetts Institute of Technology (MIT) disclosed that businesses using big data and analytics outperformed their peers by 5% in efficiency and 6% in profitability. Through harnessing enormous knowledge, big data analytics helps companies originate consumer-centric insights to boost business operations. (Source: Harvard Business Review) Big data will end up playing a greater role in driving e-commerce as technology expands and becomes a more persistent incidence in day-to-day lives. There are few rooms left). Later, we see it as an object that we were thinking of purchasing online shades us as commercials around the internet. To analyse cookies and click stream on consumer browsers, e-commerce businesses use special tools to recognise trends in customer shopping behaviours and can then provide personalised deals, advertising and discounts to those customers [32].

#### **4. CONCLUSIONS:**

The definition of big data refers to the immense amount of data generation that was never understood before. Data is generated in many forms and from various sources. New technologies are available for real-time processing in order to handle such voluminous data generated with greater velocity. Big data would change the way research is conducted and future events are forecast. It brings new possibilities and new markets that are oriented towards precision marketing. Using Big Data Analytics, it is possible to evaluate customer behaviour online and forecast consumer preferences. This allows e-commerce companies to refine their marketing campaigns in real time through the convergence of all data sources and forms. The use of big data and related technology brings comprehensive features to effectively operate e-commerce companies, thereby generating value for businesses. This is a gateway into the future to thrive and compete. Managing such big data is not free from problems and difficulties, as the system has to manage voluminous data. Organizations looking to incorporate big data analytics should grasp the programme and have sufficient human resources to handle it. A lack of eligible individuals on the market and the deployment of correct individuals is an uphill job. One of the main problems that occur when managing such data is data privacy and protection.

#### **REFERENCES:**

- 1 Tao, S., Manolopoulos, V., Rodriguez, S. & Rusu, A., 2012. Real-Time Urban Traffic State Estimation with A-GPS Mobile Phones as Probes. *Journal of Transportation Technologies*, 2(1), p.22.
- 2 Tao, S., Manolopoulos, V., Rodriguez, S. & Rusu, A., 2012. Real-Time Urban Traffic State Estimation with A-GPS Mobile Phones as Probes. *Journal of Transportation Technologies*, 2(1), pp.22-31.
- 3 The Center for Media Justice, 2013. *Consumer, Big Data and Online Tracking in the Retail Industry*. Center for Media Justice.
- 4 Ververidis, C. & Polyzos, G., 2002. Mobile marketing using a location based service. In *Proceedings of the First International Conference on Mobile Business*. Prentice-Hall. pp.1-8.
- 5 Wielki, J., 2013. Implementation of the Big Data concept in organizations – possibilities, impediments and challenge. In *FEDCSIS*, 2013.
- 6 Yi, J. & Niblack, W., 2005. Sentiment mining in WebFountain. In *Data Engineering, 2005. ICDE 2005. Proceedings. 21st International Conference on*. IEEE. pp.1073--1083.

# BIG DATA IS CHANGING E-COMMERCE

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## 1. INTRODUCTION:

The digital universe of data is expected to rise 61 percent to 175 zettabytes by 2025, according to an IDC survey. E-commerce forms a significant part of this digital universe, accumulating social media activity of consumers, geolocation services, profiles of web browsers, and abandoned online shopping carts.

While it is nice to collect customer data, analysing the data is what gives a distinct advantage to e-commerce businesses. In the sense of current business dynamics, e-commerce companies using big data analytics will comprehend the buying behaviour of their clients. These businesses, in turn, adapt their marketing specifically to consumer desires, produce fresh goods that meet customer expectations and ensure that staff provide the quality of service requested by customers. Big data will obviously have an important influence on e-commerce.

## 5 Ways Big Data Is Changing eCommerce:

You may have seen the hashtag #BigData floating around on Twitter, clicked on it and checked out a few articles related to it. More often than not, you think Big Data is a pretty cool concept but you're not entirely sure how it could possibly relate to your business. Think again. Big Data, regardless of its hype in recent months, is here to stay — and should be a concern for every business whether big or small. In fact, companies doing a majority of their businesses online should have this pertinent issue on the front of their minds. In this article, we explore what big data means to eCommerce companies and what they can do to maximize the potential of Big Data.

### 1. Personalization

With more customer-collected data, such as loyalty schemes, visitor browsing habits and previous purchasing behaviour, marketers may process this data to segment consumers and thus put out customised content and promotions.

### 2. Dynamic pricing/offers

After data collection and processing, a reasonably precise profile can be generated for each customer. In doing so, this consumer profile offers insights into the price that the customer can re-engage and convince him to buy again. Note that for consumer retention strategies this has proved the most successful. This will also make it easier to determine if a \$10 off or 20% discount works well for any individual client.

### 3. Customer service

Sixty-eight percent of visitors online leave due to bad customer support, which is vital to rising sales. Big Data can help organise the different communication networks, such as telephone calls, emails and live chat functions. An awareness of can problems impact consumers or time periods in which customer service is required most will also allow businesses to better allocate resources. Any dispute between customers can thus be better resolved within

### 4. Supply chain management

Each eCommerce company knows that its supply chain process is transparent and carefully controlled. Big Data offers retailers the ability to detect trends that can help anticipate future snapshots and process interruption and rapidly enforce preventive steps. Any changes in stock or delivery alerts can for example, be obtained in real time and instantly transmitted to the retailer.

### 5. Predictive Analytics

Big Data gives you a more detailed summary, including revenue and inventory, of your company's various networks. Further versatility to determine the next steps of your company is created by learning how to predict.

## 2. BIG DATA AN OPPORTUNITY FOR E-COMMERCE:

Big Data provides massive e-commerce possibilities because it allows the online e-commerce shop to closely connect and analyse its digital customers. If the big data is used correctly in e-commerce, "a before and "a after in your online shop experience could make a difference. The E-commerce European Conference held in Madrid in October

2012, reported that big data would be a growth factor that would move \$34,000 million in 2013, using a method for analysing microdata. In 2015 the projections for the study and management of big data will also provide 4.4 million direct jobs. The White House revealed in March 2012 the National Big Data Initiative for Big Data Re-searchable projects worth over \$200 million. A two-year, Big Data Public Private Forum is being sponsored by the European Commission to direct European Commission action for the successful implementation of the big data economy. The next few points are how big data generates e-commerce opportunities:

### 2.1 Personalization of products for customers

Customized customer support online shopping demand. More and more tailored product prices are also required. Big Data helps marketers to evaluate consumer experiences on all platforms, including social, mobile and online, to decide how they use the goods they have purchased and want to buy. For example, e-commerce should include directives for your complement chain so some consumers can choose features like colour or wired versus wireless with a configurable product. A separate group of consumers could get eco-friendly goods and value added services like gift packaging could be given to another segment. All this can be achieved in real time, using big data to adapt the available goods to the target consumer segments.

E-commerce companies can process this information to segment clients, thereby promoting individual content and promotions by gathering more data from consumers from different points of contact such as loyalty programmes, visitor browsing habits, and past buying activity. This customised content is available through social networking sites, e-mail and online publicity for its customers. Personal purchasing behaviour helps visitors to catch items that are interested in Facebook by clicking on the product that consumers make while visiting an advertisement.

### 2.2 Dynamic pricing for customer

After the collection and analysis of data generated by big data, a reasonably detailed profile can be defined for each customer. This consumer profile offers insights into the price the customer will take again and convince him to purchase another product from the web. This has proved to be the easiest way to attract customers. The e-commerce web, for instance, will determine whether a discount of 10 or 20% for Rs is the better for each individual customer.

In order to decide the best sales price, an e-commerce company may use dynamic pricing to compete with other e-commerce companies, which includes the inclusion of data from a number of sources, including competitive pricing, regional preference, product sales, and customizations. E-commerce giant like Amazon already has this feature, which has a huge competitive advantage for its company.

### 3. CONCLUSION:

The e-commerce industry has already been profoundly influenced by Big Data and will undoubtedly continue to do so. 99 companies expect 95 percent of all transactions to be made by 2040 via e-commerce. Big data analytics can be used to update their copy to plan, reinforce their self-service customer support posts, and analyse surveys. Not only that, e-commerce companies should plan for seasonal inflows, emerging patterns, and consumer tastes.

Although big data can be the most effective tool for an e-commerce company, only 0.5 percent of big datasets are used. Traditional on-site systems do not store or process the size and complexity of today's data sets. But what should be done by a promising e-commerce company?

E-commerce companies are turning to cloud-based Big Data analytics to leverage the strength of big data. Cloud-based tools can easily and efficiently store, transform, and analyse information. Talend Data Fabric is a robust application suite that automates integration, making it simple to analyse all information

### REFERENCES:

1. Tao, S., Manolopoulos, V., Rodriguez, S. & Rusu, A., 2012. Real-Time Urban Traffic State Estimation with A-GPS Mobile Phones as Probes. *Journal of Transportation Technologies*, 2(1), p.22.
2. Tao, S., Manolopoulos, V., Rodriguez, S. & Rusu, A., 2012. Real-Time Urban Traffic State Estimation with A-GPS Mobile Phones as Probes. *Journal of Transportation Technologies*, 2(1), pp.22-31.
3. The Center for Media Justice, 2013. Consumer, Big Data and Online Tracking in the Retail Industry. Center for Media Justice.
4. Ververidis, C. & Polyzos, G., 2002. Mobile marketing using a location based service. In *Proceedings of the First International Conference on Mobile Business*. Prentice-Hall. pp.1-8.
5. Wielki, J., 2013. Implementation of the Big Data concept in organizations – possibilities, impediments and challenge. In *FEDCSIS*, 2013.
6. Yi, J. & Niblack, W., 2005. Sentiment mining in WebFountain. In *Data Engineering, 2005. ICDE 2005. Proceedings. 21st International Conference on*. IEEE. pp.1073--1083.

## E-COMMERCE: FACTORS INFLUENCING INDIAN CONSUMER

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### 1. INTRODUCTION:

*“E-commerce (electronic commerce or EC) is the buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily the Internet.”*

E-commerce is conducted using a variety of applications, such as email, fax, online catalogs and shopping carts, Electronic Data Interchange (EDI), File Transfer Protocol, and Web services. Most of this is business-to-business, with some companies attempting to use email and fax for unsolicited ads (usually viewed as spam) to consumers and other business prospects, as well as to send out e-newsletters to subscribers.

The benefits of e-commerce include its around-the-clock availability, the speed of access, a wider selection of goods and services, accessibility, and international reach. Its perceived downsides include sometimes-limited customer service, not being able to see or touch a product prior to purchase, and the necessitated wait time for product shipping.

E-commerce in recent times has been growing rapidly across the world. e-commerce industry in India has witnessed a growth of US\$ 3.8 billion in the year 2009 to US\$ 9.5 billion in 2012, showing year to year growth of 34%. Industry sources indicate that this growth can be sustained over a longer period of time, as e-commerce will continue to reach new geographies and encompass new markets. From the point of view of business, there are two models of e-commerce. First model is known as „Market Place“ model, which works like exchange for buyers and sellers. The „Market Place“ provides a platform for business transactions between buyers and sellers to take place and in return for the services provided, earns commission from sellers of goods/services. Ownership of the inventory in this model vests with the number of enterprises which advertise their products on the website and are ultimate sellers of goods or services. The „Market Place“, thus, works as a facilitator of e-commerce. Different from the „Market Place“ model is the second category of business known as „Inventory Based“ model. In this model, ownership of goods and services and market place vests with the same entity. This model does not work as a facilitator of e-commerce, being delineated therefrom, but is engaged in e-commerce directly.

As already mentioned above, growth of e-commerce industry has been phenomenally high. However, its growth is dependent on a number of factors and most important of them is Internet connectivity. As per Forrester McKinsey report of 2013, India has 137 million Internet users with penetration of 11%. Total percentage of online buyers to Internet users is 18%. Although many factors support the growth of e-commerce in India, the fledgling industry is faced with significant hurdles with respect to infrastructure, governance and regulation. Low Internet penetration of 11 percent impedes the growth of e-commerce by limiting the internet access to a broader segment of the population. Poor last mile connectivity due to missing links in supply chain infrastructure is limiting the access to far-flung areas where a significant portion of the population resides. High dropout rates of 25-30 percent on payment gateways, consumer trust deficit and slow adoption of online payments are compelling e-commerce companies to rely on costlier payment methods such as Cash on Delivery.

While purchasing online Indian Consumer consider following factors.

1. Security
2. Product Experience.
3. Product Information.
4. Variant.
5. Delivery Time.

### 2. SECURITY:

Indian consumer keeps security all of the above while purchasing, to ensure the security, privacy and effectiveness of e-commerce, businesses should authenticate business transactions, control access to resources such as webpages for registered or selected users, encrypt communications and implement security technologies such as payment gateway (i.e., PayPal and e-paisa). In India consumer mostly prefer Cash on Delivery.

### **Product Experience:**

Visiting a brick-and-mortar store is an experience. The entire store displays, lighting, and staff are there to give you a total experience to help you enjoy your shopping. E-shopping lack many of these personal touches that give offline upper edge. E-commerce will never overtake offline shopping until it can offer customers the same comforting and pampering experience.

### **Product Information:**

Product information is very important for any consumer. Consumer want to know the product information i.e., product price, feature, dimensions, and comp-ability of product are according to their need or not. Different consumer has their different need and requirement. Detail product information is very crucial to do purchasing. Customer has their own quarry which has to justify to close the deal.

### **Product availability:**

Product availability very important, mainly in garment industry, every company has a different guideline for product. Every brand has a different fit guide, and companies will have to use a universal sizing chart or measure items based on actual body measurement. During online shopping if consumer finalized any product on portal product availability with seller is very important. If product is not available with the seller to deliver, then it's become a disappointment for consumer.

### **Delivery Time:**

One of the main factors is delivery time after making purchase. Customer wants to feel, experience and use in no time. When customer purchases an item in a store, he gets it immediately. This gives shoppers a "shopping high", which feel good and encourage them to buy more. When customer shop online, the items do not show up for several days, which reduce the pleasure from the purchase. While many companies offer free ground shipping, faster shipping rate are still expensive.

## **3. KEY FACTORS IMPACTING E-COMMERCE:**

### **TRUST**

Kee and Knox (1970) maintained that there should be some serious motivation to adequately research trust and that the trustee must know about the risk involved. Johnson-Georges and Swap (1982: 1306) said that they were not prepared to take risks. The definition of truth suggested in this research is a willingness on the part of a party to be vulnerable to other parties' actions on the basis of expectations, regardless of their ability to influence or track the other party, that they will take a particular action essential to the trust (Park and Kim, 2003). Trust can be a key factor for e-commerce businesses (B2C). Consumers trust it, even though an e-trader is unknown, to purchase goods or services. It promotes the increased usage of e-commerce technology, enables e-transaction, increases the level of acceptance and adoption of e-commerce, enhances consumer commitment and enhances customer retention, introduces the loyalty model, retains long-term customer relationships and helps achieve competitive benefits. Future shopping can be promoted and rates can be improved. It eliminates customers' fears about the protection of information and makes customers withstand the e-errors trader's (Pittayachawan, 2008). Trust is a complex term and has several sides to deal with. Many researchers have continuously approached the problem of "trust" from a technological side such as the Internet, network security and even the design of web interfaces (Fernandes, 2001; Clifford et al., 1998; Pittayachawan, 2008). Nevertheless, in view of only technological perceptions Klang (2001) as well as Ratnasingham and Kumar (2000) will not ensure e-commerce confidence.

### **SECURITY, FRAUD AND HACKING:**

Both government and industrial organisations are generally aware that information security concerns are an important barrier to the rise in e-commerce from a customer point of view. The risk perception of Internet safety has also been identified as a matter of concern to seasoned and novice Internet users (Miyazaki and Fernandez, 2001). In addition, online retailers described Miyazaki, Fernandez and Rose, E-Commerce users (1999), as being an apparent security threat to E-Commerce. The fraudulent activity of online retailers is a key concern of Internet users. This is because the accessibility and online availabilities of stored data by many businesses enable hackers on the Internet to steal data from these corporate databases. In several recent studies, these threats were identified (Aleid et al., 2009; Al-Ghaith et al., 2010). In India, Dixit and Datta (2010) studied e-banking acceptance among adult clients. The findings showed that several factors such as security and data safety, faith, creativity, familiarity and knowledge increase acceptance among Indian customers of e-banking services.

#### **AWARENESS AND PERCEIVED USEFULNESS:**

In the context of the information systems (IS) sector, a great deal of research has represented the importance of the effect on the approach to e-commerce of perceived usefulness. The real explanation for e-commerce customers are finding it a valuable facility for online shopping (Alghamdi, 2011). In addition, the Sathye research (1999) shows that using online banking services, a great example of e-commerce, provides many clients with new information, which is critically impeded by the lack of understanding of online banking. He concluded in his review of 500 clients from Australia that clients did not realise the possible advantages of online banking. This is supported by a study conducted by Howcroft et al, (2002) that identifies challenges for e-commerce adoption due to the lack of awareness and information about online banking services. The consumer acceptance of the electronic government services in Malaysia was examined in Suki and Ramayah (2010). Their findings show that significant determinants for consumer acceptance of the eGovernment services are viewed as being useful, user-friendly, compatible, interpersonal, external, self-effective, facilitative, behavioural influence and intent on the use of eGovernment services.

#### **ACCESSIBILITY:**

The internet is increasingly becoming a key source of information and services, so that people can access information to the public and increase their participation, an existing e-commerce website is becoming important. Websites for e-commerce will act as a tool for consumer and public communication and relations. Knowledge and data can be exchanged easily with external stakeholders and transferred (Moon, 2002). Henry (2006) describes access to the Web as allowing people understand, access, guide and communicate with the Web. Henry (2006). Accessibility was defined by the International Standards Organization(ISO) as the usability by people with the widest range of capacity of a product, service, environment or facility." The user interface is described by Gummerus et al. (2004) as the medium through which customers access the e-service provider. Park and Kim (2003) found that customer satisfaction is influenced directly by the nature of the user interface, as it offers both physical proof of service provider competence and promotes effective user service utilisation. Tan, Tung and Xu (2009) identified 14 main factors in developing productive B2C e-commerce websites because of their value for customer satisfaction. In addition, Cyr (2008) examined the impact of confidence and fulfilment in all three developing countries, Canada, Germany and China, on the effect of B2C e-commerce user interface design factors (such as information design, navigation design and visual design). Cyr found these variables for user interface design to be key antecedents of website faith and culture-wide Website satisfaction.

#### **PERCEIVED QUALITY:**

There are two aspects of the perceived quality of the service; the technical dimension, relating to the distribution and the practical dimension to the delivery of the service. The technical quality refers to response time, updates and website performance (Rust & Lemon, 2009). The functional dimensions of quality are interactive communication, personalised communication and the service, and new ways of customer access. The consumer understanding of the quality of the product/service information given by the website is the product/service quality (Park & Kim, 2003). The website content quality was argued as an anterior of online consumer trust in its quality according to Mcknight et al., 2002. Park and Kim (2003) have found that the accuracy of knowledge directly influences the satisfaction of customers. The critical factors in assessing the public importance of e-government in Sri Lanka have been established in Karunasena and Deng (2012). The study shows the main factors for the evaluating of Sri Lankan eGovernment's public benefit by providing quality information and services, information and services user orientation, the performance and responsiveness of public organisations and the public organisations' contributions to environmental sustainable growth.

#### **ROLE OF GOVERNMENT:**

The role of government is of major importance in the development of e-commerce in developing countries such as robust safe on line payment options, the establishment of strong ICT infrastructure, the provision of education programmes, and awareness-raising through various forms such as media and schools.

#### **4. CONCLUSION:**

E-commerce is diffident on the rise, and will continue to grow. But online industry should understand the change in the consumer behavior in Indian consumer. Indian consumer needs and expectation during purchase is complicated. While purchasing consumer consider Security of Financial transactions, want to take product Experience, to know Product information, and want product delivery in no time. To close this gap E-commerce has to do work hard and fulfill the consumer needs and wants.

#### **REFERENCES:**

1. Assael, Henry, "Consumer Behaviour and Marketing Action" 6/e, Thomson Learning, Singapore, 2001.

2. Arndt, Johan, Role of Product- Related conversations in the Diffusion of a new product, *Journal of Marketing Research*, 4 : August 1967.
3. Buskirk, Richard, H. "Principles of Marketing: The Management view", Holt, Rinehart and Winston, Inc. New York, 1961.
4. Copeland, M.T., Consumer's Buying Motives, *Harvard Business Review*, Vol.2, Issue 2: 1924.
5. Andras Deak, when will E-commerce overtake offline shopping?
6. [www.telephonymuseum.com](http://www.telephonymuseum.com)
7. [www.yale.edu./ynhti/curriculum/units/2003/4/03.04.07.x.html](http://www.yale.edu./ynhti/curriculum/units/2003/4/03.04.07.x.html)
8. [www.privateline.com](http://www.privateline.com)
9. [www.answers.com](http://www.answers.com)
10. [www.arm.com](http://www.arm.com)

## IMPACT OF ONLINE BUSINESS ON INDIAN ECONOMY

Dr. Kailas Arjunrao Thombre

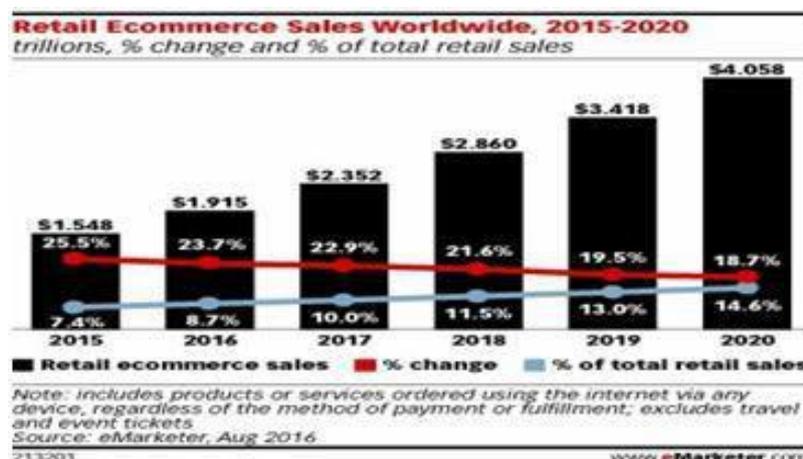
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### ABSTRACT:

*This paper uncovers the significance of ecommerce in Indian economy. As we as a whole realize India is among the quickest developing economy of the world, consequently it is a lot of essential to have government intercession and colossal speculation inflow in type of Foreign direct interest in enormous economy like India to balance out and increment the growth of ecommerce industry in the economy. In India with the advanced entrance has expanded fundamentally, as per factual information web use has expanded to 429.23 million client in India and is required to stretch around 830m by year 2021 . "There has been critical ascent of online business in India, as India's web economy is 125 billion dollar in 2017. In this paper we will look towards the function of government in ecommerce industry and furthermore look towards the different obstructions of web based business in Indian aspects."In this examination paper we will speak chiefly about B2C Ecommerce and its level of GDP in Indian economy. we will likewise discussed business people jobs and diminishing estimation of simplicity of working together in India as India in 2017 positioned in 100th situation from 132th situation out of 190 nations in 2008" . For a nation, for example, India, one of the main points of interest of web based business is its capability to assist creating country zones with jumping frog into the information worldview. "Online business is extraordinary stage not exclusively to create foundation yet in addition increment work rates in India and accordingly generally sway in expanding economic and social growth in Indian economy."*

### 1. INTRODUCTION:

Today web based business has become a significant piece of everyday life. Openness to web based business stages isn't an advantage but instead a need for the vast majority, especially in the metropolitan regions. There are elective web based business stages accessible (rather than the customary actual stages) for pretty much every part of our lives, beginning from buying of regular family unit things to online financier." As in 21st century as web has gotten generally significant and oftentimes and most need gadget, it will clearly competition to accomplish more growth and deals through web. "As indicated by e Marketer, overall retail Ecommerce deals will reach \$1.915 trillion before the finish of 2017. with increment in advanced entrance all over the globe and modest and regular simple accessibly of web , it is inclined to expand the growth of ecommerce the whole way across the world , in the interim parcel of customary individuals are very stressed and strained with change in example of offer through web" , with the accessibility of modest and rapid web with assortment and security choices , part of individual and firms have associated their business with e-commerce.(As in late world it is exceptionally difficult to develop without being accessible on the web . Accordingly to develop more and acquire higher benefit it is strongly prescribed to have legitimate structure accessibility and simple availability of online locales, in light of the fact that it not just decides benefit and no. of clients yet additionally decides the positioning and position of big business of the firm in generally speaking business world. Additionally in this exploration paper I will centered about the growth and example of web based business in India and its deals and effect in Indian economy, of all various kinds of web based business, my examination paper limits its investigation to for the most part b2c sorts of business, however it covered different kinds of internet business and its social effect likewise in India by means of deals of web based business in India.



Hence there is huge ascent in offer of retail web based business throughout the long term and as per e-Marketer retail web based business deal by 2020 should arrive at more than \$4trillion. With above figure we can undoubtedly see how continuous and unexpected the difference in deals design is world as all the significant economies are moving towards web based business deals.

### 1. What is E-business?

There is no broad meaning of electronic trade , however for the most part online business is characterized as E-business (electronic trade or EC) is the purchasing and selling of merchandise and ventures, or the sending of assets or information, over an electronic organization, essentially the web yet additionally any remaining exercises which are related with any exchange, for example,

- Delivery
- Payment assistance,
- Supply chain and administration the executives, can likewise be sorted or put under this segment of economy. Web based business builds the growth of online business. It tends to be classified under
  1. Online showcasing
  2. Online publicizing
  3. Online deals
  4. Product conveyance
  5. Product administration
  6. Online charging
  7. Online installments

Hence, electronic trade manages all the outstanding tasks at hand identified with web. It additionally portrays the trading of information between the financing, charging and installment parts of e-business exchanges. For the most part web based business and e-business are utilized conversely."

### 2. Different Types of E-Commerce:

There are various sorts of web based business; we will analyze five fundamental kinds of web based business in this exploration paper.

1. **BUSINESS TO BUSINESS (B2B)** – it includes all electronic exchanges of good or administrations led between 2 organizations. This kind of internet business incorporates intra framework and electronic business sectors.
2. **BUSINESS TO CUSTOMER (B2C)** - This exchange did in the retail exchange with singular purchasers. This commonplace purchaser of any store on the site is a shopper or a purchaser.
3. **CUSTOMER TO CUSTOMER (C2C)** - in this kind of web based business shopper sells its item straightforwardly to purchaser.
4. **CUSTOMER TO BUSINESS (C2B)** - In this class of e - trade, singular customer of merchandise or administrations offers their item to association.
5. **BUSINESS TO GOVERNMENT (B2G)** – In this web based business segment it bargains of trade among organizations and public area is recorded.

There are some interesting highlights of E-trade which along these lines causes firm to extend their business and in this manner procure benefit, and hence helps in accomplishing growth. A portion of the exceptional element of E-business is –

- Ubiquity
- Global reach
- Universal principles
- Richness
- Interactivity
- Information thickness
- Personalization
- Types of web based Business models
  1. Drop dispatching
  2. Wholesaling and warehousing
  3. White – labeling
  4. Manufacturing
  5. Subscription based
- Product models for E-COMMERCE
  1. Single item

2. Single classification
  3. Multiple class
  4. Affiliate
  5. Hybrid
- M-COMMERCE (portable trade) is the way toward purchasing and selling of merchandise and enterprises through remote innovation for example gadgets, for example, cell phones and individual advanced associates. Japan is viewed as worldwide head of m-trade. This is all the more quicker, secure and adaptable. In coming years the commitment will altogether increment in worldwide market with increasingly more portable entrance on the planet.

With Reference of M-Commerce in India

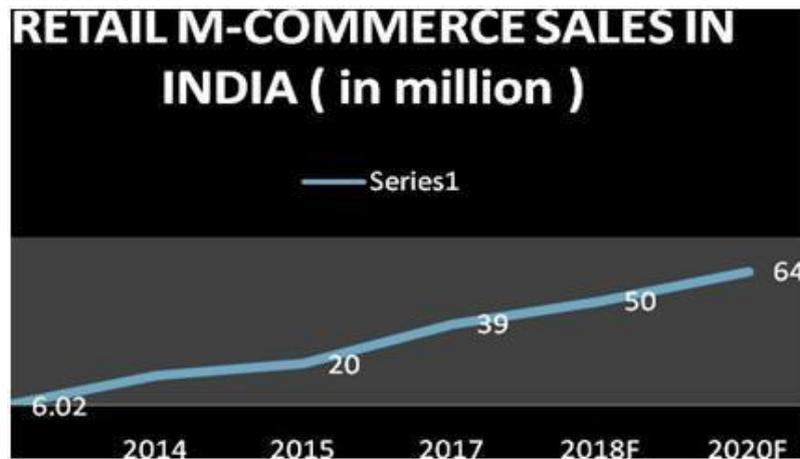


Fig1 - retail m-commerce sale in India (2015-2020) [source - stastia.com]

Aside from Japan, United Kingdom, South Korea, Australia, Netherland are among the quickest developing m-trade economy of the world in 2015. In 2017 m-trade in Germany , the us and UK , m-business will involve in any event one third of all out retail ecommerce deal (emarketer.com) M-trade is developing quickly as a steady and secure enhancement to the online business world in India."As per prerequisite numerous little firms have additionally settled online stores to have more effect and acquire more benefit for the venture. In this manner it is a lot of critical to have secure and intelligent online destinations and application as they would assume significant function for accomplishing more growth. The presentation of the paper ought to clarify the idea of the issue, past work, reason, and the commitment of the paper. The substance of each segment might be given to see effectively about the paper.

## 2. LITERATURE REVIEW:

- "Shebazbano Salim Khan , S. N. Borhade , and Mainuddin S. Shaikh in their paper "Effect of internet business on Indian Market: Social and Economic Impact" concentrate how Electronic trade (internet business) as a component of IT revolt got significant part on the planet bargain when all is said in done and Indian economy in demanding. The Paper finds the economic and social effect of online business. (E-trade is as of now ascending at 30% .shopping webpage eBay Inc. Is developing at 60%. The quantity of clients of the organization has increased from 1,000,000 clients to 2.5 million in India; over the most recent four years. A portion of the well known imported things imported by Indians incorporate home stylistic theme, marked and unbranded clothing, extras, and innovation items.")
- ("affreenara and Dr Kishore Kumar Das in their paper "Growth of E-Commerce in India" discussed Ecommerce one of the most noteworthy developing business, with India having incredible market potential for speculations. There has been tremendous flood in venture since; a year ago and then some, is normal in coming years. The quick growth being used of portable and web clients has encouraged ecommerce business in both metropolitan and rustic urban communities. The themes covered incorporate the terms investigation of trade, key drivers of growth, market growth potential, speculation, retail market, coordination's foundation, web guidelines, key difficulties and fate of ecommerce.")
- ("Mustafa Yapar and sedabayrakdar in their exploration theory named "The Role of Taxation Problems on the Development of Ecommerce "talked about how significant internet business in our everyday lives. The effects of globalization and quick advancements are, knowledgeable about information and innovation raises level of web based business. Web based business gives organizations to sell their products and ventures with an alternate

strategy around the globe and concedes, to customers to get to merchandise and enterprises without any problem. Tax assessment from web based business is a significant, issue for nations, organizations and purchasers who need to be a gathering of web based business. The issues, for example, charge misfortune and tax avoidance are vital regarding nations. Troubles like, vulnerability and twofold tax collection make gatherings of online business hesitant and influence improvement of internet business contrarily. In this investigation, the function of tax assessment issues on the advancement of ecommerce will be analyzed. We will, expect to zero in on, how online business can be created with legitimate expense guidelines.")

- "(Devendera Agarwal in examination paper named "Web based business: True Indian Picture" discussed the knowledge of internet business and features the current situation of web based business in India. It presents the riding example of Indian public, to give the basic survey on reality of different reports being distributed every now and then. (It additionally fundamentally examinations the online business with significant spotlight on electronic trade. The paper reasoned that potential for growth of online business in India is huge. We have additionally observed that measure of interest that is there for movement industry isn't seen in different administrations. Proficient web based business; sites are doing phenomenal work however what are the elements that are restraining clients from buying on the web should be learned.)

### 3. OBJECTIVE OF STUDY:

India is one of the biggest developing economies of the world. There is weighty utilization of web among Indian residents. The primary essential target of this exploration paper is -

1. To investigation the current patterns of web based business in India
2. Government activities and diverse plan in growth of internet business in India
3. Impact of online business on proficiency rate and work rate in India

### 4. RESEARCH METHODOLOGY:

➤ **Method Of Data Collection:** Secondary information – different exploration papers of comparative sort have been alluded to check the organization and the kind of charts for analization of information .Other than this , different researcher and information from other guaranteed bank and source are utilized to gather information which is deciphered further for information investigation

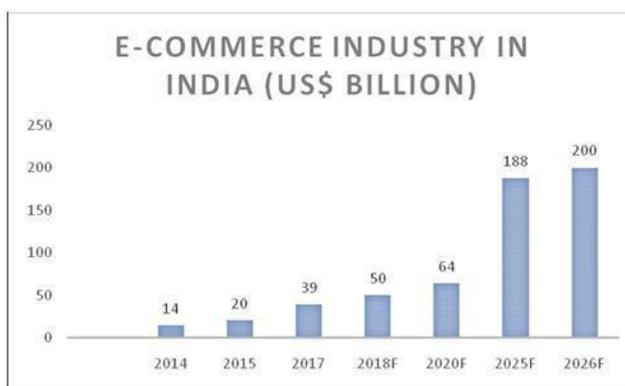
- **Type of Research Design:** The examination is engaging and exploratory examination. Enlightening as in it set up connection between education pace of the nation and given boundary. Exploratory examination as in it gathers information from different boundary and will in general set up a circumstances and logical results connection between the boundaries.

- **PARAMETER:** - Different boundary is utilized to set up connection between the markers. Proficiency rate, m-trade deal, growth of web, joblessness rate and other such pointers are utilized to build up clear comprehension about markers.
- **DATA REPRESENTATION:** - The information gathered is spoken to in type of Table, diagram, pie outlines and X-Y charts.
- **Data strategy –** To set up clear arrangement and relationship among markers SPIERMAN RANK CO-RELANTION AND PEARSON CO-RELATION is utilized in this exploration paper.

#### ➤ **Snapshot Of E-Commerce Industry In India:**

Web based business in India is quickest developing economy of the world. Indian E-trade is developing at a yearly pace of 51% , the most elevated on the planet and is required to hop from \$30b in 2016 to \$120billion by ( 2020 ) (source – assocham – forrester study paper ).With \$680b in online retail deals in 2016, china is biggest E-business market around the world, trailed by United States and afterward India."In India however there were utilization of online business even before 1990s, yet their commitment were essentially immaterial. As of late a great deal of blue chip PE firms have put away an immense cash on India web based business as there is altogether tremendous potential and occasion to progress. "In India 100% FDI is allowed in B2B internet business and hence shows the public authority goal and commitment towards internet business industry in India. The growth of web based business in India profoundly reliant on the accompanying sub factors that do affect Indian economy when it comes about internet business industry in India" .a portion of these factor are –

1. Participation of specialty organizations in internet exchanging
2. Unmatched FDI
3. Uniform GST



Source - (economic times, pwc, financial express)

Indian web based business industry has been an upward growth direction and is relied upon to outperform U.S to become biggest E-trade market on the planet by 2034. India is at cusp of advanced upset." Internet has become significant piece of significant populace principally in light of the fact that:-

1. Decrease in the ensuing cost of broadband membership cost.
2. Change in metropolitan India’s changing way of life
3. Increase in netzens
4. Convenience of web based shopping

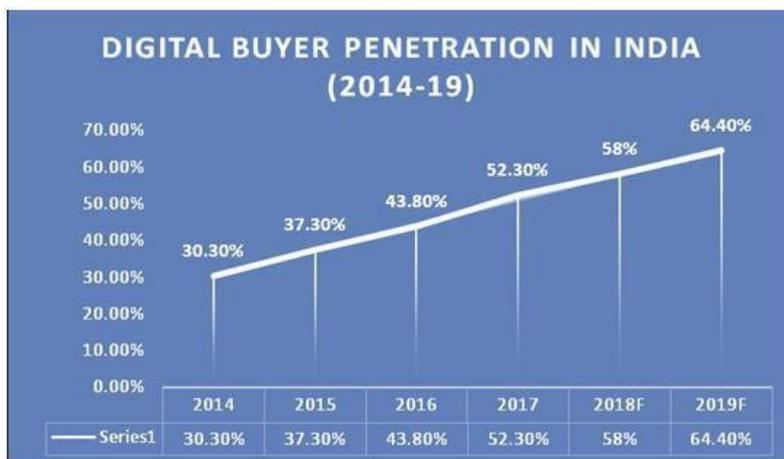
To the study of onlinesales.ai about Indian market, they expressed that web based business in India is developing at extremely high rate and is required to account around 1.61% of worldwide GDP by 2018. As indicated by onlinesales.ai they discovered that some of huge no. identified with internet business in Indian market they were –

- 100+ retail customers
- 1.4+ million buys
- 2+ million exchange

The above number not just shows not just how great their commitment is Indian market , yet in addition discussed their serious level of reliance in Indian economy and its commitment in India GDP. As indicated by NASSCOM, India online piece of the pie expanded at more than 19 percent last schedule year which contact around assessed US\$33 Billion of every 2017.

**Digital infiltration in Indian economy**

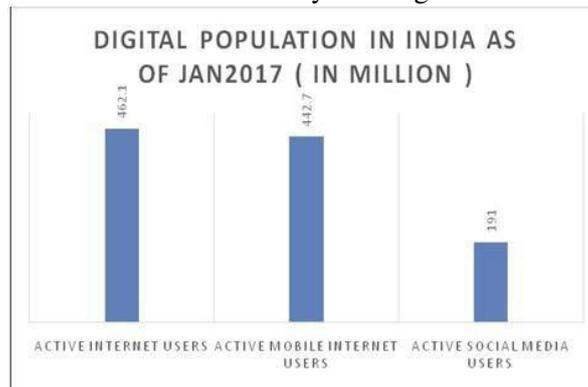
In India cell phone infiltration rate are expanding over years , with the expanding function of and significance of web and digitalization , it is consequently a lot of expected to have a functioning cell phone with legitimate web association ,, With the expansion of part of online business in India , and its high commitment and expanding of internet business share in all out retail deal .As of 2015 , 18.21% of India’s generally speaking populace possessed a cell phone that is around to be at 39% by 2019 (Source – stastia.com)This increment in cell phone entrance in India is finished by the point that India’s portion of the worldwide cell phone market is gauge to dramatically multiply between 2013-17 to reach ."



(Source - statstia.com)

With the expansion in number of cell phone and great network of web it is hence much required factor to expand internet business impact in the Indian economy. The above diagram portrays increment in advanced entrance in India, from 30% in 2014 normal 64% by 2019, Availability of enormous number of electrical machines and its positive impacts has guided towards quite an expanding pattern .With the expansion in computerized infiltration, it consequently as

indicated by (stastia.com) that we should realize where did the populace, what they did with the expansion of advanced infiltration increases. Consequently as indicated by stastia.com reports, Indian advanced individuals in jan2017, diverse arranged individuals went under various subsection which by and large affected web based business in India.



### Government Initiatives Supporting the E-Commerce Growth in India

The function of government in expanding the growth of internet business is significant and assumes tremendous part in the growth of internet business in Indian market. It is the public authority approaches and changes which not just influences the unfamiliar venture and outlook of financial specialists across the globe, however individuals additionally influences from the administrative arrangements. since 1991 when administration of India opened its economy with the presentation of LPG (Liberalization , privatization and globalization ) the Indian public began appreciating the advantages of open economy Since 1995 when web was first presented for online business reason in Quite a while. Since 2014 administration of India has declared different activities to be specific

- Digital India
- Make in India
- Start-up-India
- Skill India
- Innovation reserve

The best possible working of and powerful execution of this program will absolutely support the growth pattern of web based business in India.

- In the association financial plan of 2017-18 government has designated us\$1.55 billion to Bharat Net project. As indicated by which town will likewise be open to fast web and Wi-Fi hotspots and computerized administrations at extremely low duty in country and panchayatlevels.
- Government of India has reported the dispatch of BHIM application, it will expand the advanced installment in the nation .it has been embraced by more than 12.5 million individuals of India. For advancement of this application legislature of India has reported 2 plan for advancement of this application. they are -

1. Referral reward plot for person

2. Cash back plot for shippers

- The public authority of India has dispersed prizes worth of RS 153.5 core to more than 1 million residents or state clients for grasping advanced installment under plan of Lucky Grahak Yojana and Digi – dhan vyapar yojana.
- Government of India has put part of cash and changes which have affected in growth of web based business in India. Growth as well as has expanded the way of life of individuals. With the joblessness rate diminishing and pace of education is expanding over the long run , one thing which Gov. of India is as of now zeroing in is on growth of business visionaries in India . In this manner fire up India is empowering growth youthful business visionaries. Subsequently administration of India has likewise dispatched different activities like UDAAN , UMANG , START UP INDIA PORTAL and so forth
- The public authority of India has found a way to give assets through “Fund of Funds” conspire which is effectively working in Indian situation and in this manner assisting MSME additionally.
- Role of FDI assumes significant function in the growth of internet business industry in India. Prior venture rate in India was significantly low which consequently connotes low online business growth across country. Since FDI IN B2B web based business is 100% FDI recompense which implies greater speculation; however FDI in B2C is as yet confined due to legislative standards. In spite of all the public authority limitations speculations are made in Indian market in light of the fact that there are parcel of chance in Indian market which can be legitimate used can prompt more benefits. Accordingly speculation and FDI polices have a tremendous effect. speculators like –

1. Idgvc Partners
2. Tiger Global Management
3. Accel Partners
4. Index Ventures
5. Sequoia Capital
6. Alibaba
7. Temasek Holdings
8. Forerunner Ventures

Are a portion of the significant speculators in web based business industry in India under government web based business approaches? In India 2015, there was most elevated truly financing with \$11.3B. Despite the fact that in India FDI in multi brand retail organizations isn't permitted at this point , Though a few firms utilizes PROMOTIONAL FUNDING which is a roundabout course for subsidizing when FDI is confined is pervasive in India . Along these lines 100% FDI in B2C is acceptable beginning for speculators to realize the market size and opportunity in Indian market and hence greater venture and FDI will unquestionably build the growth of web based business in Indian market.

- RESERVE BANK OF INDIA has chosen to permit "between operability" among prepaid installment instruments (PPIs, for example, e-wallets will energize credit only economy and along these lines in the long run more utilization of internet business in Indian market
- TAX SYSTEM AND INTRODUCTION OF GST is another administration motivator/conspires which will expand internet business growth in India in coming year's .with the brought together expense framework it diminishes the falling of assessment which consequently streamlines the store network the executives side of web based business likewise. In this manner e-following gets simpler and now and again in some industry less expensive likewise which gives fabricates and retailer to extend their business across India. With consistency in duty, it will help in extending the positive side of internet business across India and subsequently won't support a specific state. In spite of the fact that in India TIER1 urban communities are more inclined of online business as their normal request esteem is RS – 1544 and in TIER 2 is RS 1157 and RS 1033 in TIER3 urban areas in India as per IBEF report (source – ibef.com). Accordingly Tax framework additionally has significant influence in internet business growth in India. India positioned 119th situation in 190 nations in assessor of "covering charges" in this manner which should be diminished .consequently as a result of which business turns out to be hard and hard for retailers and accordingly speculators doesn't ready to contribute more.
- E-GOVERNENCE is another significant plan or activity taken by administration of India. It will likewise help the online business growth and along these lines will likewise bring straightforwardness among the residents of India. India in EGDI file positioned low was UNITED KINGDOM AND AUSTRILIA have most noteworthy position in EGDI with file score of 0.92 and 0.91 individually.
- Government of India to set up zenith cybercrime coordination focus. – in the wake of having 1,44,496 digital protection assaults in India during 2014-16 there is plan to set up cybercrime coordination focus which will help in settling the issues of cybercrime and consequently attempt to invalidate it. States should likewise open region level cybercrime coordination focus to expand effectiveness and resolve issues and increment internet business growth in India. Phishing, checking or testing, site interruptions and disfigurement, infection or pernicious code are a few kinds of cybercrime .After this year spending list, there are bits of gossip that administration of India will begin designating a few assets for network protection, which won't just build computerized and web infiltration however will likewise help online business growth.

Country	E-COMMERCE AS PERCENTAGE OF TOTAL RETAIL SALE(X)	LITERACY RATE OF THE COUNTRY(Y)	Rx	Ry	D-RX-RY	D*D
uk	14.50%	99.02%	2	1	1	1
INDIA	1.80%	74.04%	5	5	0	0
BRAZIL	2.80%	92.60%	4	4	0	0
CHINA	15.90%	96.40%	1	3	2	4
s.korea	9.80%	97.90%	3	2	1	1
						D*D=6

**5. DATA ANALYSIS :**

- In this exploration paper we will discover connection between internet business growth in any nation and its proficiency rate. Along these lines to discover we utilized information strategy of spearman rank relationship technique. Where we have E-trade as level of complete retail deal indicated as (x) and education pace of the nation signified as (y). Here D= contrast between the 2 positions in which Rx is rank of x marker similarly Ry is the position of y pointer.

$$1 - \left( \frac{6\sum d^2}{n(n^2 - 1)} \right) = 1 - \left( \frac{6 \times 6}{n(n^2 - 1)} \right)$$

Coefficient (z) = 1 - 36/120  
 = 1 - 0.3  
 = 0.70

here n=6 = 1 - 6\*6/125-5

As n=5 we have z = 0.7. This show a solid positive connection between the ecommerce as level of absolute retail deal and education pace of the country. That is more the proficiency pace of the country more will be the internet business as level of all out retail deal in the country and the other way around. In this exploration paper we will likewise attempt to discover the connection between's joblessness rate and B2C online business as level of GDP in India. As in India joblessness rate was expanding and individuals underneath destitution line discover hard to utilize the advantages of internet business in India. In spite of the fact that in the prior section we saw that there was increment in portable entrance in India which some way or another effects in the growth of web based business deals in India. With this connection between's India joblessness rate and web based business as level of gdp in India, there is interface between these 2 pointer need to discover utilizing relationship investigation.

year	e-commerce as percentage of gdp in India	India unemployment rate
2009	0.13	3.91
2010	0.12	3.55
2011	0.14	3.54
2012	0.15	3.62
2013	0.16	3.57
2014	0.18	3.53
2015	0.18	3.49
2016	0.2	3.46
2017	0.21	3.4
		-0.674043437

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

Pearson correlation coefficient

Utilizing above equation we got r= - 0.67403 .the (-) negative sign simples that with the expansion in one amount, other amount diminishes and bad habit – versa. Which basically clarifies my model? In my exploration paper likewise with the expansion in the level of web based business deals in India, the joblessness rate in India diminishes, as an ever increasing number of occupations are required when there is an increment in ecommerce growth and in this manner needs occupations and these jobless individuals will land positions and consequently there will be a decline in a joblessness level. Consequently there can be expansion in occupation in coordination’s and conveyance and client care, IT AND MANAGEMENT and subsequently incompetent work will likewise be required while overhauling foundation if there is increment in a web based business growth in India. Here r = (- 0.67) means solid negative connection between's the two markers. Subsequently as indicated by ET BUREAU , ascend in online business could make net of 12 million positions in a nation longer than 10 years which will diminish joblessness level and increment internet business growth in India , which can be effortlessly perceived from this model

**6. FINDINGS:**

- There is an expansion in a computerized entrance in India i.e. more cell phones are used by the individuals of India .which will in general build m-business growth in India.

- There is increment in web infiltration in India. India positioned second in most web clients on the planet
- There is an expansion in an internet business pattern in India. With increment in a commitment of internet business in India's GDP.
- Government are making important impetuses and plans to advance digitalization and accordingly promising web based business growth in India
- E-business of the country is connected with the education pace of the country. With more proficiency and instructed individuals there will be more web based business growth in a nation.
- Negative relationship amongst joblessness and ecommerce growth in India.

## 7. CONCLUSION:

Through the investigation of exploration paper we came to know how significant online business industry right now on the planet is. With setting of India we additionally attempt to locate the upward pattern of growth of web based business in India, and furthermore increment in m-start and advanced entrance in India. Government approaches and activities has likewise lead to increment of internet business in India over years. As indicated by review after derision, function of credit only economy in India has expanded fundamentally, subsequently the part of web additionally moreover other such government strategies have likewise had a significant effect. A great deal has been done and a ton must be done with regards to internet business industry in India. Likewise we study effect of education rate and joblessness rate on the growth of online business industry in India. Likewise there is huge need to expand the education rate in India and furthermore spread mindfulness among rustic individuals in India about credit only economy and function of web in India in today's world. With need of more allotment of cash towards digital wrongdoing and exacting laws should be made, not exclusively to make this cycle safer yet in addition dependable. In this examination paper we experienced the pattern of internet business in India which is rising essentially and furthermore how specialist organization like 4G, 3G served to expand the computerized entrance in India which along these lines served to expand the online business and m-trade deals in Indian economy. In like manner government had additionally assumed gigantic function through various laws and approaches towards the growth of deals by means of web.

## REFERENCES:

1. BCG & IAMAI. (2015) India @ Digital Bharat. Creating a \$200 Billion Internet Economy. Mumbai: The Boston Consulting Group.
2. BCG. (2012). The Connected World. The Internet Economy in the G20. the \$ 4.2 Trillion Growth Opportunity. Boston: The Boston Consulting Group.
3. Bilbao-Osorio, B., Dutta, S., & Lanvin, B. (2013) the Global Information Technology Report 2013. Geneva: World Economic Forum.
4. Blili, S., & Raymond, L. (1993) Information Technology: Threats & Opportunities for Small and Medium sized Enterprises. International Journal of Information, 13, 439-448
5. ITIF. (2013). the Economic Benefits of Information and Communication Technology.
6. Washington DC: Information Technology & Innovation Foundation.
7. Jehangir, M., Dominic, P., Naseebullah, & Khan, A. (2011). Towards Digital Economy: The Development of ICT and E-Commerce in Malaysia. Modern Applied Science, 5 (2), 171-178.
8. Impact of E-Commerce in Indian Economy by Kumar Anuj, Fahad Fayaz, Ms Namita Kapoor
9. Dr. Anjum Bimal, Tiwari Rajesh, „Economic and Social Impacts of E-Commerce, “ CFA International Journal of Computing and Corporate Research, VOLUME 1 ISSUE 3 MANUSCRIPT 9 NOVEMBER 2011, ISSN-2249-054X
10. KPMG report“ authored by Doger Kritika and Tanwar Prahlad available at [www.kpmg.com](http://www.kpmg.com)
11. Hiwarkar Tryambak, „E- Commerce impact on Indian Market: a Survey on social impact“, International Journal of Advanced Research in Computer Engineering & Technology, Volume 2, Issue 3, March 2013, ISSN: 2278 – 1323 .

# INTERNET MARKETING: A BUSINESS REVIEW FROM INDIAN CONTEXT

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## ABSTRACT:

*This paper deals the conceptual knowledge of search engine marketing (SEM) or e-commerce, literature review, current and future aspects of e-commerce in Indian context. This paper discussed about the top motivator factors of shopping online. The present development would be a valuable addition to researcher and academicians; and useful theory for practitioners, advertisers, and entrepreneurs.*

## 1. INTRODUCTION:

Khan and Mahapatra (2009) remarked that technology assumes a fundamental role in improving the nature of services provided by the business units. One of the technologies which really got information revolution the society is Internet Technology and is appropriately regarded as the third wave of revolution after agrarian and modern revolution. The bleeding edge for business today is e-Commerce. The effects of e-commerce are already appearing in all areas of business, from customer service to new item design. It facilitates new types of information based business processes for reaching and interacting with customers like online advertising and marketing, online order taking and online customer service etc. It can likewise reduce cost in overseeing orders and interacting with a wide range of suppliers and exchanging partners, areas that regularly add critical overheads to the expense of items and services [Rajiv Rastogi]. Businesses are increasingly utilizing the Internet for commercial activities. The pervasive nature of the Internet and its wide worldwide access has made it an extremely effective mode of communication between businesses and customers [Rowley (2001)]. Thompson (2005) introduced that the development of Internet technology has enormous potential as it reduces the expenses of item and service delivery and extends geographical boundaries in uniting buyers and sellers. Devendra et. al., (2012) defined that electronic commerce, commonly known as e-commerce or ecommerce, consists of the purchasing and selling of items or services over electronic system, for example, internet and other computer network. Intent is the technology for e-commerce as it offers easier approaches to access companies and people at very minimal effort in order to complete everyday business transactions. Search engine marketing (SEM) is a form of web advertising that companies use to promote their items and services on search engine results pages (SERPs). SEM is focused on the effective use of search engine advertisements (a.k.a., sponsored results, sponsored joins) that appear on the SERP. SEM which permits firms to target consumers by setting advertisements on search engines has proven to be an effective audience acquisition strategy. Unlike traditional online advertising, advertisers pay only when users really click on a promotion when successfully implemented, SEM can generate steady traffic levels and tremendous return on investment (ROI).

Boughton (2005) remarked that most online advertising efforts have two fundamental objectives: brand development and direct response. Selecting an appropriate marketing channel ultimately depends on which strategies will provide the greatest ROI. Firms that offer items and services through the Web clearly remain to pick up from Internet advertising because their prospective customers are already online. Non web-based companies may choose online marketing to increase exposure and promote brand. SEM permits companies to closely follow their ROI from an audience acquisition outlook. SEM delivers promotions to users who are already searching for the items or services that an advertiser is offering, meaning that theoretically, they are only receiving qualified traffic. Unlike traditional banner promotions, advertisers are charged based on the number of clicks they receive, not on the number of impressions (number of times and advertisement appears). Furthermore, many marketing efforts place a great deal of importance on marking. PPC promotions can be very effective in terms of driving home a brand name because they appear alongside search results for a huge number of different search terms. SEM is a form of Internet marketing that involves the promotion of websites by increasing their perceivability in SERP through optimization (both on-page and off-page) just as through advertising (paid placements, contextual advertising, and paid inclusions) [Search Engine Land 2007].

This paper deals the conceptual knowledge of search engine marketing or e-commerce, literature review, current and future aspects of e-commerce in Indian context. This paper discussed about the top motivator factors of shopping online. The present development would be a valuable addition to researcher and academicians; and useful theory for practitioners, advertisers, and entrepreneurs. The further research areas are; the nature of sponsored advertisement text, promotion position, Search Engine Optimization (SEO), Page Rank, yellow pages, offers management etc.

## 2. LITERATURE REVIEW:

Literature on web theory is meager because it is a relatively a new area and the technologists at the forefront of Web design are ordinarily not sufficiently academically inclined to formulate the relevant theories (Day, 1997). While previous research has examined Internet usage (Teo, Lim, and Lai, 1999), commercial websites (Gonzalez and Palacios, 2004), website design (Kim, Shaw, and Schneider, 2003), website effectiveness from the consumers' perspective (Bell and Tang, 1998), valuing paid placements on search engine (Sen et. al., 2008), and offering (Bernard and Simone, 2011). This form of online advertising emerged in 1998 [Fain and Pedersen 2006], quickly has become the central business model of the major search engines [Jansen and Mullen 2008], and is one of the most quickly developing segments of the online marketing area [SEMPO Research 2009]

Search engine has become a necessity for people to ride the web [Hsien-Tsung Chang, 2011]. It is a simple user interface is designed. Any user basically fills in several fields and the system makes the decision about what to discover, where to search and what to look like at. The threshold of search is lowered. SEM is an internet marketing model targeting advancing the positioning of websites in the search engine's search results page which can make a web site introduce into more web users and website traffic [prospect 2008]. Li-Hsing HO et. al., (2011) explained about exploration of SEO technology applied in internet marketing, Kesharwani and Tiwari (2011) studied the importance of website quality towards the success or failure of any e-vendor. Khan and Mahapatra (2009) studied that the nature of internet banking (I-banking) services in India from customer's perspective. Malhotra and Singh (2007) carried out a research to discover the I-banking adoption by the banks in India. Hence, the opportunity has already come and gone that India should move quickly and decisively to use the developing electronic trade to our advantage.

## 3. TYPES OF E-COMMERCE:

Waghmare G.T. (2012) has defined the accompanying types of e-commerce:

- B2B E-Commerce: Companies working with each other, for example, manufacturers selling to distributors and wholesalers selling to retailers. Estimating is based on amount of order and is often negotiable.
- B2C E-Commerce: Businesses selling to the general public ordinarily through catalogues using shopping basket software. By dollar volume, B2B takes the prize, however B2C is really what the average Joe has as a primary concern with regards to e-commerce as a whole. For example [indiatimes.com](http://indiatimes.com).
- C2C E-Commerce: There are numerous sites offering free classifieds, auctions, and forums where people can purchase and sell because of online payment systems like PayPal where people can send and receive money online easily. eBay's auction service is a great example of where customer-to customer transactions take place every day.
- Others: G2G (Government-to-Government), G2E (Government-to-Employee), G2B (Government-to-Business), B2G (Business-to-Government).

## 4. MAJOR SEARCH ENGINES IN THE MARKET:

By unmistakable search engines, means that search engines, portals, and websites who have alliances and who request offers for paid placements from a single source are treated as one search engine. For instance, by successfully offering for a paid connection with Overture exposes a seller to traffic from several websites, including MSN, Yahoo!, AltaVista, Info Space, All the Web and Net Zero. There are different search engines by content/theme, for example, Baidu (Chinese, Japanese), Bing, Blekko, Google, Sogou (Chinese), Soso.com (Chinese), Volunia, WireDoo, Yahoo!, Yandex (Russian), Yebol, and Yodao (Chinese). Among PPC providers, Google Ad Words, Yahoo! Search Marketing, and Microsoft ad Center are the three largest network operators, and each of the three operate under an offer based model.

## 5. THE ADVANTAGES AND DISADVANTAGES OF INTERNET MARKETING:

Melody and Robert (2001) remarked that the Internet can provide timely information to customers because of its capacity for moment communication, and its accessibility 24 hours per day, 7 days every week [Lane, 1996]. On-line marketing offers more choices and flexibility [Lamoureux, 1997] and, at the same time, eliminates huge inventories, storage costs, utilities, space rental, etc., [Avery, 1997]. People tend to associate Internet marketing with direct marketing because companies partaking in online marketing normally shortened the store network [Edwards, et al., 1998] and reduced commission and operating expenses. The capacity to serve as both a transaction medium and an actual distribution medium for certain products is a unique feature of Internet marketing. Such advantages can be best realized by companies that provide advanced items/services, for example, software, music, news, consulting services, online ticketing and reservations, telemedicine, insurance, banking, stock brokerage, charge, and other monetary service industries. Utilizing the Internet as the distribution channel can reduce the delivery cost generously, yet in addition ensures moment delivery of items/services.

Moreover, Ruckman (2012) suggested that Internet research becomes an increasingly important instrument during the buying process; more marketers are seeing the advantages as well. It's a mutually beneficial arrangement. Marketing departments are investing more into online marketing today because it's:

- Attractive to a critical segment of the demographics for most customer profiles. It can effectively reach the target customer.
- Faster and less expensive to conduct direct marketing efforts.
- Measurable, which means that successes are identifiable and repeatable.
- Open 24-hours every day.
- Cost-effective, over the long haul.

## 6. DISADVANTAGES:

There is no genuine face-to-face contact involved in the Internet communication. For the types of items that rely heavily on building personal relationship between buyers and sellers, for example, the selling of life insurance, and the type of items that requires actual examination, Internet marketing maybe less appropriate. While internet marketing can't permit prospective buyers to contact, or smell or taste or 'take a stab at' the items, However a survey of consumers of cosmetics items shows that email marketing can be used to interest a consumer to visit a store to attempt an item or to speak with sales representatives [Martin at el (2003)]. Some of the disadvantages of e-Marketing are dependability on technology, Security, protection issues, Maintenance costs due to a constantly evolving environment, Higher transparency of estimating and increased price competition, and worldwide competition through globalization.

## 7. TOP MOTIVATORS FOR SHOPPING ONLINE:

Times of India (February 12, 2013) has published that top motivators for shopping online which include unconditional promise, money down, quick delivery, generous limits compared to retail, and access to branded items, while barriers include failure to contact and attempt items before purchase, fear of flawed items, apprehension of posting personal and monetary details online and powerlessness to deal (See Figure 1).



Figure 1. Top Motivator Factors for Shopping Online

## 8. CONCLUSIONS AND RECOMMENDATIONS:

This paper deals the conceptual knowledge of search engine marketing or e-commerce, literature review, current and future aspects of e-commerce in Indian context. This paper discussed about the top motivator factors of shopping online. The present development would be a valuable addition to researcher and academicians; and useful theory for practitioners, advertisers, and entrepreneurs. Some of the disadvantages of e-Marketing are dependability on technology, Security, protection issues, Maintenance costs due to a constantly evolving environment, Higher transparency of evaluating and increased price competition, and worldwide competition through globalization. While considering the aforesaid limitations; advertisers and end-users can effectively use this modern platform to make life easier and faster. In the next 3 to 5 years, India will have 30 to 70 million Internet users which will equal, if not outperform, a considerable

lot of the developed countries. Internet economy will then become more meaningful in India. With the fast expansion of internet, Ecommerce is set to assume a very important role in the 21st century, the new opportunities that will be opened up, will be accessible to both large corporations and little companies [Waghmare (2012)]. Karoor (2012) explained that Ecommerce encapsulates huge numbers of the elements of 21st century of India. The potential huge and mind and energy of the entrepreneurs in the sector are impressive. Online commerce in India is destined to develop both in revenue and geographic reach. The further research areas in ecommerce are; the nature of sponsored promotion text, advertisement position, Search Engine Optimization (SEO), Page Rank, yellow pages, and offer management etc.

## REFERENCES:

1. Kulkarni, Product Manager: <http://yourstory.in/2013/01/indian-e-commerce-what-does-the-future-look-like/>.
2. Avery, S. Online tool removes costs from process. *Purchasing*, vol. 123, no. 6, (1997), pp. 79-81. S. B. Boughton, Search engine Marketing, Bart Boughton was a student in the MBA program in the School of Management and Business at St. Edward's University, (2005).
3. H. Bell and N. K. H. Tang, "The effectiveness of commercial Internet websites: a user's perspective", *Internet Research: Electronic Networking Applications and Policy*, vol. 8, no. 3, (1998), pp. 219-228. J. Bernard and S. Simone, "Bidding on the buying funnel for sponsored search and keyword advertising", *Journal of Electronic Commerce Research*, vol. 12, no. 1, (2011), pp. 1-18.
4. A. Day, "A model of monitoring Web site effectiveness", *Internet Research: Electronic Networking Applications and Policy*, vol. 7, no. 2, (1997), pp. 109-115.
5. D. Agrawal, R. P. Agrawal, J. B. Singh and S. P. Tripathi, "E-commerce: True Indian Picture", *Journal of Advances in IT*, vol. 3, no. 4, (2012), pp. 250-257.
6. N. Edwards, S. Handcock and J. Mullen, "Electronic commerce: reality bytes", *Supply Management*, vol. 3, no. 8, (1997), pp. 32-34.
7. D. C. Fain and J. O. Pedersen, "Sponsored Search: A Brief History", *Bulletin of the American Society for Information Science and Technology*, vol. 32, no. 2, (2006), pp. 12-13.
8. F. J. M. Gonzalez and T. M. B. Palacios, "Quantitative evaluation of commercial websites: an empirical study of Spanish firms", *International Journal of Information Management*, geocart.com : <http://www.geocart.com/online-business-success.asp>, vol. 24, no. 4, (2004), pp. 313-328.
9. H.-T. Chang and S. Wu, "A Switching Proxy for Web Search Engines. Advanced in Information Sciences and Service Sciences", *Advanced Institute of Convergence Information Technology*, vol. 3, no. 5, (2011), pp. 52.
10. IProspect, Information on <http://www.iprospect.com/search-engine-marketing-university/>, (2008).
11. E-Commerce or Internet Marketing by D. K. Gangeshwer B. J. Jansen and T. Mullen, "Sponsored search: An overview of the concept, history, and technology", *International Journal of Electronic Business*, vol. 6, no. 2, (2008), pp. 114-131.
12. U. Karoor, "E-commerce in India: Early Bards expensive worms", *Consumer and shopper insights*, (2012).

# POSITIVE CHANGE IN E-COMMERCE BUSINESS USING BIG DATA

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## 1. INTRODUCTION:

The digital world of data is projected to expand 61% to 175 Zettabytes by 2025 in an IDC survey. Electronic trading forms a major component of this modern environment – the aggregation of social media, geolocation, web browser history and discontinued online carts for customers. Although the collection of customer data is massive, the analysis of data is a clear advantage for e-commerce companies. In the sense of current consumer dynamics, companies in e-commerce that use Big Data Analytics will understand the buying behaviour. These organisations, in turn directly adapt their marketing to the consumer expectations, produce new goods, and ensure that workers provide the quality of service they are seeking from consumers. Big data will obviously have a substantial impact on e-commerce.

## 2. WHAT IS BIG DATA?

Although more and more data are being processed over time, how much data is there? The quantity of knowledge in our world is daily in scale. In zettabyte and petabyte the volume of information is estimated. In the next decade the number of data or files contained in the digital world and the servers handling the world's data stores will be 10 times higher. For the next decade the number will rise. Data that grow too large travel very quickly and don't fit into the da-tabase architecture framework. This massive, complex and unstructured data is called "Big Data," which is difficult to process and store.

## 3. HOW BIG IS BIG DATA?

Electronic developments such as the social media, e-commerce and mobile trading have generated millions of data residing in the form of e-mails, photography, blogs, videos, social networking, etc. To properly comprehend such a large variety of data sets, e-commerce companies have an immense challenge and potential. The challenge will continue to increase in the coming years.

Data is generated daily in a wide range of ways, including social media postings, sensor and medical device data and transaction records, in about 2,5 billion gigabytes. In future, the data volume will rise by 800% over the next five years and by 80% as unstructured data. The internet content of the last 10 years has increased 30 times, to 35 zeta bytes, and the data volume has risen 60 per cent annually.

For the E-commerce sector, this rise is the greatest obstacle. Since these data are very large and difficult to obtain, because they are generated at very high speed. It is evident from the e-commerce field that the big data issue cannot be addressed by conventional tools for data processing as these data are unstructured and wide in number. There are two types of data on the e-commerce platform, one, ERP, CRM, SCM, which are stored in the relevant databases, and another, unstructured data from disruptive technologies, like web, e-mail, picture, etc. All this information is both structured and unstructuring and must be collected and analysed during the Big Data cycle.

There are 500 million users on Facebook who regularly produce information on different forms, including email, images and video. Likewise, E-commerce giant Walmart is dealing in one hour with one million transactions. These transactions have been imported from more than 2560 terabytes of data into databases of size. Every second the planet is making 10,000 payment card transactions. Any transaction requires swift, comprehensive processing by different third-party dealers worldwide. The E-commerce giant Am-azon.com manages millions of backend activities every day and requests from more than half a million sellers. Amazon's core technology is Linux-based and has the world's 3 largest Linux databases from 2005, with a size of 7.8 TB, 18.5 TB and 24.7 TB. The scale and structure of Big Data can be calculated from these estimates.

## 4. HOW E – COMMERCE COMPANIES USE BIG DATA?

Big Data Partnership reaps several significant advantages for the ecommerce business. The traffic behaviour is seen in an e-commerce shop. This traffic may be most commonly visited by search engines or online advertising. Collecting data that a user connects to more often, Facebook, including tweets generated by users, for a specific product. Often how long a user spends on a particular E-commerce website, the details of the cookies stored on the customers computer and which items are seen best for the user, helps marketing and generates better campaigns. Thus, even though the consumer buys nothing the comporment is examined.

A data analyst team manages data that is left in the form of text, image and video by the digital consumer. This data collected includes the real internet activity and current pattern of the customers. These useful knowledge helps to prepare future micro strategies at e-commerce sites. Moreover, businesses take the right price to close the deal and appropriate for their clients to data such as competitor pricing, product sales, geographic preference and client behaviour. E-commerce firms use Big Data to rapidly collect information about multiple goods from multiple parties so as to provide their customers with accurate delivery time. Big data assists businesses in e-commerce to classify market activities prior to happening. For instance, an e-commerce company may automatically order its inventory from its highest price range last year and the most sold colour of sweaters.

***This Paper will highlight six ways big data can foster positive change in any e-commerce business:***

1. Elevated shopping experience
2. More secure online payment
3. Increased personalization
4. Optimized pricing and increased sales
5. Dynamic customer service
6. Generate increased sales

### 1. Elevated shopping experience

E-commerce companies have an endless supply of data to fuel predictive analytics that anticipate how customers will behave in the future. Retail websites track the number of clicks per page, the average number of products people add to their shopping carts before checking out, and the average length of time between a homepage visit and a purchase. If customers are signed up for a rewards or subscription program, companies can analyze demographic, age, style, size, and socioeconomic information.

Predictive analytics can help companies develop new strategies to prevent shopping cart abandonment, lessen time to purchase, and cater to budding trends. Likewise, e-commerce companies use this data to accurately predict inventory needs with changes in seasonality or the economy.

Lenovo, the world's largest PC vendor, serves customers in more than 160 countries. Striving to enhance the customer experience and differentiate the company from the competition, Lenovo needed to understand customer needs, preferences, and buying behaviours. By collecting data sets from a variety of touch points, Lenovo used real-time predictive analytics to elevate the customer experience and achieve an 11% increase in revenue per retail unit.

### 2. More secure online payments

In order to provide a peak shopping experience, customers need to know that their payments are secure. Big data analysis can recognize atypical spending behavior and notify customers as it happens. Companies can set up alerts for various fraudulent activities, like a series of different purchases on the same credit card within a short time frame or multiple payment methods coming from the same IP address.

Likewise, many e-commerce sites now offer several payment methods on one centralized platform. Big data analysis can determine which payment methods work best for which customers, and can measure the effectiveness of new payment options like "bill me later". Some e-commerce sites have implemented an easy checkout experience to decrease the chances of an abandoned shopping cart. The checkout page gives customers the ability to put an item on a wish list, choose a "bill me later" option, or pay with multiple various credit cards.

### 3. Increased personalization

Besides enabling customers to make secure, simple payments, big data can cultivate a more personalized shopping experience. 86% of consumers say that personalization plays an important role in their buying decisions. Millennials are especially interested in purchasing online, and assume they will receive personalized suggestions.

Using big data analytics, e-commerce companies can establish a 360-degree view of the customer. This view allows e-commerce companies to segment customers based on their gender, location, and social media presence. With this information, companies can create and send emails with customized discounts, use different marketing strategies for different target audiences, and launch products that speak directly to specific groups of consumers.

In fact, many retailers cash in on this strategy, giving members loyalty points that can be used on future purchases. Sometimes, e-commerce companies will pick several dates throughout the year to give loyalty members extra bonus points on all purchases. Typically, this is done during a slow season, and increases customer engagement, interest, and spending. Not only do loyalty members feel like VIPs, they give information companies can use to deliver personalized shopping recommendations.

#### 4. Optimized pricing and increased sales

Beyond loyalty programs, secure payments, and seamless shopping experiences, customers appreciate good deals. E-commerce companies are starting to use big data analytics to pinpoint the fairest price for specific customers to bring in increased sales from online purchases. Consumers with long-standing loyalty to a company may receive early access to sales, and customers may pay higher or lower prices depending on where they live and work.

Otto, Germany's biggest online retailer for home furnishing products, is one of Europe's most successful e-commerce companies. To maintain that title, Otto has to compete against giants like Amazon. Otto consolidated its many data silos into one database, making it easier to develop 360-degree customer profiles, analyze competitor data, and determine what sales channels perform best. Otto can now easily use big data to optimize pricing, produce more tailored marketing campaigns, and sharpen their strategy for onsite ad bidding.

#### 5. Dynamic customer service

Customer satisfaction is key to customer retention. Even companies with the most competitive prices and products suffer without exceptional customer service. Business.com states that acquiring new customers costs 5 to 10 times more than selling to a new customer. What is more, loyal customers spend up to 67% more than new customers.

Companies focused on providing the best customer service increases their chances of good referrals and sustains recurring revenue. Keeping customers happy and satisfied should be a priority for every e-commerce company. So how does big data improve customer service? Big data can reveal problems in product delivery, customer satisfaction levels, and even brand perception in social media. In fact, big data analytics can identify the exact points in time when customer perception or satisfaction changed. It is easier to make sustainable change to customer service when companies have defined areas for improvement.

Shoe retailer ALDO recognized that the millennial generation — which drives much of their sales — recognizes the importance of customer service. Not only do ALDO customers want to interact on e-commerce sites, consumers also want to hear and read about ALDO on social media, and other channels. ALDO needed to leverage big data to understand customer behavior and provide excellent customer service.

Although ALDO was already collecting customer data, it was challenging to connect customer profiles to transactions and interactions across all channels. Using a big data tool that was agile, fast, scalable, and flexible to capitalize on variable cost, ALDO can now easily expand global reach — supplying a localized experience for each customer. ALDO continues to use big data to create innovative products and deliver a delightful customer experience.

#### 6. Generate increased sales

Big data helps e-retailers customize their recommendations and coupons to fit customer desires. High traffic results from this personalized customer experience, yielding higher profit. Big data about consumers can also help e-commerce businesses run precise marketing campaigns, give appropriate coupons, and reminding people that they still have something sitting in their cart.

Domino's Pizza is an extraordinary example of an e-commerce business using big data to boost sales. Domino's "AnyWare" ordering program allows customers to purchase pizza via their smartwatches, TVs, cars, and social media. Making sales so easy and convenient was a critical advantage for Domino's pizza sales. However, combining data from disparate sales channels in real time was inconceivable without modern technology.

Using a big data platform, Domino's easily integrated information from 85,000 unstructured and structured data sources. With a single view into customers and global operations, Dominoes can now collect, cleanse, and standardize data from all point-of-sale systems and supply centers. This data is fed into Domino's data warehouse, where it is combined with USPS, competitor, and demographic information.

## 5. CONCLUSION:

Although many e-commerce companies collect huge quantities of data, only a few uses the insights given by the Big Data analysis properly. The way we shop today, and the way we work e-commerce businesses, will undoubtedly be influenced by the use of big data. Big data, in conjunction with cloud computing, would affect the e-commerce future, relative to the past generation of computers. By making a correct analysis and processing of big data, e-commerce would benefit from its trade in the future. In future Expert Systems can also take more business decisions that would be much better than the decision-making ability of a human, based on data derived from the big data analysis. This will undoubtedly boost the profits and success of e-commerce. Before it can be completely used, However must overcome many of the technical challenges stated in this paper. Advanced analysis should be carried out thoroughly leveraging and addressing the emerging technical and application problems of Big Data in e-commerce. This study highlights the opportunities and challenges associated with the use of Big Data in e-commerce.

## REFERENCES:

1. Ahmad Ghandour-"Big Data Driven E-Commerce Architecture",International Journal of Economics, Commerce and Management,ISSN 2348 0386 Vol. III, Issue 5, pp:940-947,May 2015.
2. ShahriarAkter and Samuel FossoWamba-"Big data analytics in e- commerce: A systematic review and agenda for future research",Electronic Markets 26 173-194, 2016.
3. HsinchunChen,Roger H. L. Chiang and Veda C. Storey-"Business Intelligence And Analytics:From Big Data To Big Impact",MIS Quarterly Vol. 36 No. 4, pp. 1165-1188,December 2012.
4. Arti, SunitaChoudhary and G.N Purohit-"Role of Web Mining in E-Commerce",International Journal of Advanced Research in Computer and Communication Engineering,ISSN (Online) : 2278- 1021:ISSN (Print) : 2319-5940 Vol. 4, Issue 1, pp:-251-253,January 2015
5. Mustapha Ismail, Mohammed Mansur Ibrahim, Zayyan Mahmoud Sanusiand MuesserNat,"Data Mining in Electronic Commerce: Benefits and Challenges, -International .Communications, Network and System Sciences,pp:501-509,December 2015.

# STUDY OF PRIVACY CHALLENGES & BIG DATA SECURITY IN BUSINESS ORGANISATION

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## ABSTRACT:

*Big Data security and privacy is a big test for both data proprietor and specialist organizations. Big Data has become a need for business, analysts, medical care, and government offices. Nonetheless, the instruments and innovations that are being created to deal with this volume of data are not intended to address security and privacy prerequisites. In this exploration we will characterize the wellsprings of the Big Data and the attributes lastly what are the security and difficulties confronting Big Data.*

## 1. INTRODUCTION:

Big Data is amplified by speed, volume and assortment. The volume of data is expanding each second from various info assets. Big Data is the wording used to portray tremendous volumes of data that are huge and can't be handled utilizing ordinary databases and programming. The enormous development in data size because of the speed of data assortment and preparing of data inputs coming from the far reaching organization of associated gadgets, for example, cars, advanced mobile phones, RFID peruses, web cameras, and sensor networks requires gigantic assets to deal with this size of data with guaranteeing the security of data.

Gadgets, for example, the previously mentioned persistently create data streams without human mediation. These unstructured data sources add to a lot higher assortment of data types. The huge volume, speed, and assortment of data have a huge effect on existing security arrangements that were not planned and worked in view of Big Data. In the course of recent years, 90% of the world's data has been created.

The expedient ascent of advanced innovation, for example, computerized sensors, savvy gadgets, organizations, advanced logs and more have made the making of data, its stockpiling, use and security the more significant part of society and business endeavours in the course of the most recent couple of years. Over the long haul, the broad utilization of these gadgets and advancements have prompted the age of remarkable volumes of data, which are of differing nature, sizes, structures, and complexities. Big Data emerges in light of the combination of such data with profoundly differentiated qualities and highlights, and the rate at which data and unpredictability are produced requires capacity and taking care of that is past the methods for traditional strategies and methodology.

The measure of data has multiplied at regular intervals and requires diverse capacity techniques with various capacity media. Big data security and privacy are big difficulties for clients and specialist co-ops. A lot of enormous associations will bear significant security issues with big data by 2016. A large portion of these data are not in standard structures, which make it harder to break down with the accessible apparatuses of today. Big Data, one of the latest innovation patterns in 2013, is confronting big difficulties with security and privacy which is threatening to slow this force.

The Internet of Things (IoT) will interface 26 billion gadgets by 2020, creating colossal measures of data by utilizing gadgets with ongoing observing which is a big test for ensuring customer privacy. Individual data and customer data identified with business, joined with social data, will permit the market and unapproved admittance to this data. Each advanced electronic gadget on the planet today is associated with the web and is gathering, creating and putting away data which is gigantic.

## 2. BIG DATA SOURCES:

Enormous data sources can be named follows:

- Administrative (emerging from the organization of a program, be it legislative or not), for example electronic clinical records, medical clinic visits, protection records, bank records, food banks, and so on
- Commercial or conditional: (emerging from the exchange between two elements), for example charge card exchanges, on-line exchanges (counting from cell phones), and so forth
- Sensors, for example satellite imaging, street sensors, atmosphere sensors, and so forth
- Tracking gadgets, for example following data from cell phones, GPS, and so on
- Behavioural, for example online inquiries (about an item, an assistance or some other kind of data), online site hit, and so forth
- Opinion, for example remarks via web-based media, and so forth

### 3. CHARACTERISTICS OF BIG DATA:

Big data is a term used to portray the assortment of huge and complex data sets that are hard to handle utilizing available database the board instruments or conventional data preparing applications. Big data ranges across seven measurements which incorporate volume, assortment, volume, esteem, veracity, instability and multifaceted nature.

- **Volume:** The volume of data here is enormous and is created from a wide range of gadgets. The size of the data is normally in terabytes and pet bytes. It alludes to the size of data being made from all the sources including text, sound, video, person to person communication, research considers, clinical data, space pictures, wrongdoing reports, climate gauging and cataclysmic events, and so on

- **Velocity:** This depicts the ongoing characteristic found in a portion of the data sets for instance streaming data. The outcome that misses the proper time is for the most part of little worth.

- **Variety:** Big data comprises of a wide range of kinds of data for example organized, unstructured and semi-organized data. The

Data perhaps as websites, recordings, pictures, sound documents, area data and so on

- **Value:** This alludes to the unpredictable, progressed, prescient, business investigation and bits of knowledge related with the huge data sets.

- **Veracity:** these arrangements with questionable or loose data. It alludes to the commotion, inclinations and anomaly in data. This is the place where we see whether the data that is being put away and mined is important to the issue being dissected.

- **Volatility:** Big Data instability alludes to how long the data will be substantial and how long it should be put away.

- **Complexity:** A perplexing powerful relationship frequently exists in Big data. The difference in one data may bring about the difference in more than one bunch of data setting off an undulating impact

### 4. DATA SECURITY & PRIVACY CHALLENGES IN BUSINESS ORGANISATIONS:

The Top 10 security and privacy difficulties to defeat in Big Data as per overview directed by Cloud Security Alliance individuals and security professional situated exchange diaries the rundown of high-need security and privacy challenges. Coming up next are the main ten securities and privacy challenges.

- Secure calculations in appropriated programming systems
- Security best practices for non-social data stores
- Secure data stockpiling and exchanges logs
- End-point input approval/separating
- Real-time security checking
- Scalable privacy-safeguarding data mining and examination
- Cryptographically upheld data driven security
- Granular access control
- Granular reviews
- Data provenance

There are numerous difficulties confronting Big Data; security and privacy are only a portion of those difficulties. It has been accounted for that the development of big data expands the dangers to the current security of the data. Big data privacy is significant for the data proprietor and for the specialist co-op. Big data sizes are ceaselessly expanding from terabytes in 2012 to almost 44 zettabytes constantly 2020 of every a solitary data set. In they ordered the security challenges as follows: Infrastructure Security, Data Privacy, Data Management and Integrity and Reactive Security.

Security of touchy and private big data is expected to ensure the privacy of clients. The assurance of touchy data requires the capacity to be dealt with from various points of security: privacy, validness, respectability and access control are the basic security objectives for big data. Security of data needed to have the framework fulfils the accompanying: secrecy, respectability, and accessibility.

There are sure prerequisites for security of big data in various zones of use that incorporate government, informal communities, medical services and different applications. Ensuring Big Data while it is away has been a test to most associations because of its size and volume, particularly as they endeavour to expand data proficiency and execution. The ideal data insurance is to guarantee that when it falls into unapproved hands, it is negligible. Encryption is a strategy that can give that assurance. Be that as it may, making sure about data stockpiling need to set up earlier of disseminating the data across the cloud.

Individual and private data are gathered and broke down by unapproved elements to pick up information and make prescient examination that will coordinate individuals without their mindfulness.

There are two wellsprings of security dangers for data stockpiling. The main danger comes from the specialist co-op. The subsequent source is a foe that is financially persuaded and has the capacity to bargain the data stockpiling workers. Absence of secure correspondence between hubs is a danger for big data during transmission that can be addressed by utilizing a protected connection, for example, SSL/TLS. Data harming is another danger which implies an enemy may bargain data in transmission. Protection of the wellspring of data is a significant test for data security to identify extortion.

Data privacy is an extensive cycle incorporating security of data at the data age, stockpiling and preparing stages all through the big data lifecycle. Therefore, privacy prerequisites for data straightforwardly connect with the extraordinary necessities of each stage. In current culture, organizations esteem privacy and put a ton of assets in light of a legitimate concern for securing their customers. Likewise, there is an expansion in the utilization of cryptographic frameworks to supplement the human endeavours in encouraging data's actual security. A move toward privacy conservation has picked up significant footing as of late by consolidating privacy all through the big data lifecycle. Besides, big data security encourages data privacy through actualizing an assortment of encryption strategies. The methodologies incorporate Identity and property based encryptions and capacity way encryption frameworks. Encryption of all data is costly and needless excess as it expects to be all data as delicate. For instance, in the event that we consider the data for a patient, the individual subtleties are touchy while the sickness isn't. This implies we need to make sure about the relationship between the character of the patient and the ailments. Encryption of data relies upon the affectability, in view of the client privacy rules; accordingly data is isolated and scrambled when it is important

Big data security has developed quickly as a significant worry for customers in the course of recent years. 88% of the customers were generously stressed on their data privacy. The security issues are expanding and it is occurring a direct result of the expanding utilization of big data through transformation of this innovation. There are numerous advantages of big data. In spite of the fact that, it is defenceless against assaults. Aggressors are reliably attempting to discover escape clauses to assault the big data stockpiling.

Current innovation was not worked for big data security. Data is put away in plain content; wherein basic data can be effectively taken by programmers. Logging to basic data isn't signed in which implies any mishandled of data can't be recognized. This innovation is utilized by most organizations to store and break down their own data and their client's data which makes privacy and security significant in picking up the certainty of clients. Subsequently, there is a requirement for contributing, considering, and understanding the difficulties and giving better answers for secure big data.

There are four wellbeing variables to make sure about delicate data which are:

- Security issues when communicating touchy data from a data proprietor's neighbourhood worker to a big data stage.
- Securing touchy data while processing and capacity
- Sensitive data security issues on the cloud stage.
- Sensitive data obliteration.

West in characterized privacy as "Privacy is the case of people, gatherings, or organizations to decide for themselves when, how, and how much data about them is conveyed to other people."

Big data security and privacy are big difficulties for clients and specialist co-ops. A lot of enormous association will persevere through experiencing significant security issues with big data by 2016. The majority of these are not in standard structures which make it more hard to dissect with the accessible instruments of today. Guaranteeing privacy and segregation of data and assets by utilizing satisfactory systems for confirmation and approval. Valuable data can be separated and dissected from computerized data gathered from various sources, for example, MasterCard organizations, government offices, banking, and medical services. Despite the utilization of the data and the advantage, privacy and security is the primary test in big data. The privacy issue is primary concern nowadays that comes due to the tremendous measure of individual data accessible on web as advanced data.

Nisbet, R., et al. Asserts that data spillage makes an essential danger in the execution of big data advances by making a weakness for more genuine assaults. Essentially, data spillage happens incidentally and is credited to imperfections in the plan of big data frameworks. Shaky web applications may deal with touchy data and prompting unintended data spillage. Subsequently, the data is put away in an uncertain area and can be abused by malevolent assailants or client applications. This specialty in big data security is made by the helpless prioritization of data security in plan and thusly the restricted consistence to the business security conventions and guidelines of training in web application advancement

In has deciphered that data privacy challenges involve the security of expressly distinguishing data to the most ideal degrees while simultaneously allowing the presentation of indispensable examination on the equivalent. This incorporates guaranteeing adaptability just as composable privacy, and guaranteeing data mining and investigation

are write unfortunately presented or unveiled to parties that don't have any dire and reasonable need of such access. The implementation of data privacy likewise calls vigorously the utilization of cryptographic encryption of data to remove significance from it without progress to the important keys expected to unscramble such data. Granular access has additionally been proposed as a potential strong measure in the security of such privacy.

## 5. ACCESS CONTROL:

Access control is one of most for challenges big data. Security strategy permits the association to safe watchman their data. Approval in Big Data is more confounded on the grounds that it considers the substance.

### Confirmation

Verification is the way toward approving a client's actual asserted character or the computerized personality of a cycle or a PC. Client confirmation can be ordered into three principle classifications: verification by information - i.e., what the client knows, for example, a secret phrase (notice measurements), validation by ownership - i.e., what the client has, for example, a smartcard token (econometrics), and verification by qualities - i.e., biometrics, for example, fingerprints, retinal, and iris, and voice, face, manually written (biometrics). These confirmation approaches can be joined or utilized independently, contingent upon the requested degree of usefulness and security. Biometrics confirmation offers validation dependent on the estimation of remarkable physiological qualities of a client, for example, fingerprints and face acknowledgment. Verification in Big Data is confounded as data made from different sources confirming it to a typical worker.

### Approval

Approval is the way toward allowing or denying admittance to the stage assets dependent on the personality of clients. An approval module implements security approaches that are arranged for every function in the dynamic security space where confirmation performed. The approval cycle checks authorization rights when a confirmed client demands admittance to a help.

The approval framework recovers the gatherings' data through the custom confirmation domain for clients with the legitimate verified meetings. For instance, when a client is verified, a consent check recovers all the client's connected gatherings. On the off chance that the mentioned activity is allowed on assistance or an asset, the client will be conceded admittance.

### Fragmentation

Fracture is a procedure to segment a given connection  $R$  or set of data into at least two Partitions to such an extent that the mix of the parcels gives the first database with no deficiency of data.

Given a connection pattern  $R$ , a set  $C$  of well defined strategy limitations, and a set  $A \subseteq R$  of qualities to be divided, a discontinuity of  $R$  on  $A$  will be a bunch of sections  $F=\{F1,...,Fr\}$ .

#### 1. Relational data discontinuity:

There are three discontinuity types in the social data: vertical fracture, even discontinuity and half breed discontinuity. Verticals Fragmentation (VF) will be utilized for the social data. Vertical discontinuity permits a connection to be apportioned into disjoint arrangements of sections or traits. Each segment should incorporate a key attribute(s) of the table. VF gives more security to the data than the Horizontal Fragmentation (HF). HF permits a connection to be apportioned into disjoint tuples or examples. The issue with HF that each parcel can gives helpful data without anyone else. For our structure VF will be utilized which give greater security to touchy data. The target of vertical discontinuity is to parcel a connection into an approach limitation will be important for the data. At the point when data got, the calculation will examine the security set of more modest relations so that each part won't give information without different parts. The security imperatives and harassed the relationship between the data and the security rules. The data will be passed to the discontinuity calculations. A similar cycle will be accomplished for the data that have been saved without applying the security approach. The structure will filter the data and apply the fracture and move the data with encryption for the delicate data.

- There are two sorts of classification necessities that can be applied to the data, quality is delicate or the relationship among certain characteristics is touchy.
- Sensitive properties. A few credits are delicate and their qualities should be looked after private. Straightforward instances of such properties are SSN, Master card numbers, messages or phone numbers and comparable characteristics whose qualities ought not be delivered.
- Sensitive affiliations. At times, what is touchy is the relationship among ascribes values instead of the estimations of a quality. For example, the names of patients in a clinic might be viewed as not delicate, thus the

sicknesses treated by the emergency clinic; be that as it may, the particular relationship between singular patients and their ailments is touchy and should be looked after secret.

## 2. Text data fracture:

There will be two unique methodologies, the first, touchy piece of the data will recognize by the client utilizing sign of the beginning and the finish of the delicate piece of the content as appeared in model 1. The subsequent methodology, in the event of the delicate data was not pointed by the client; the calculation will look over the content and distinguish the key touchy word and imprint the content dependent on the security imperatives mentioned by customers. Text division is the cycle of parcel text into sections, for example, tokens, expressions, or points.

## 3. XML discontinuity:

XML will be utilized as one of the semi structure data type. it split a XML record into another arrangement of XML archives. Their fundamental target is either to improve XML inquiry execution or to convey or trade XML data over an organization. This fracture parts XML report components and allocates a reference to each sub-component. In this sort of data discontinuity calculation will utilize the idea of opening and filler. Data touchy label will distinguish if the data is delicate or not. At the point when the data is touchy the delicate data will be supplanted by opening id. Touchy data will be removed and given id as filler. The separated data will be divided and afterward encoded. For the data that the touchy data isn't recognized the calculation will look over the XML document and distinguish the delicate data dependent on the client strategy imperatives.

References

## REFERENCES:

1. Cloud Security Alliance “Top ten big data security and privacy challenges” November 2012. [https://www.isaca.org/Groups/ProfessionalEnglish/bigdata/GroupDocuments/Big\\_Data\\_Top\\_Ten\\_v1.pdf](https://www.isaca.org/Groups/ProfessionalEnglish/bigdata/GroupDocuments/Big_Data_Top_Ten_v1.pdf)
2. Venkata Narasimha Inukollu, Sailaja Arsi, and Srinivasa Rao Ravuri, “Security issues associated with big data in cloud computing”, International Journal of Network Security & Its Applications (IJNSA), Vol.6, No.3, May 2014 .
3. Kudakwashe Zvarevashe<sup>1</sup>, Mainford Mutandavari<sup>2</sup>, Trust Gotora<sup>3</sup>; “A Survey of the Security Use Cases in Big Data”; International Journal of Innovative Research in Computer and Communication Engineering; Vol. 2, Issue 5, May 2014.
4. Eweka R. Osawaru, Riyaz Ahamed A. H. “A Highlight of Security Challenges in Big Data”, International Journal of Information Systems and Engineering (online), Volume 2, Issue 1 (April 2014).
5. Klaus Engelhardt “Secure data storage an overview of storage technology”, white paper storage technology 2008.
6. Chris Marrison “Gartner warns of big data security problems”, Network-Security, 2014.
7. Elmustafa Sayed Ali Ahmed<sup>1</sup> and Rashid A.Saeed, "A Survey of Big Data Cloud Computing Security," International Journal of Computer Science and Software Engineering (IJCSSE), Volume 3, Issue 1, December 2014.
8. K. Harsh and S. Ravi, "Big Data Security and Privacy Issues in Healthcare", 2014, IEEE International Congress on Big Data, pp. 762-765, (2014).
9. Abeer M. AlMutairi, Rawan Abdullah, Jayaprakash Kar; “Security and Privacy of Big Data in Various Applications”; International Journal of Big Data Security Intelligence Vol. 2, No. 1 (2015).
10. united nations economic commission for europe; conference of european statisticians; what does big data mean for official statistics; 10 march; 2013.
11. Xiaoxue Zhang, Feng Xu, "Survey of Research on Big Data Storage", 2013 12th International Symposium on Distributed Computing and Applications to Business, Engineering & Science
12. J. Surana, A Khandelwal, A. Kothari “Big Data Privacy Methods” international journal of engineering development and research, 2017 IJEDR | Volume 5, Issue 2 | ISSN: 2321-9939.
13. Puneet Goswami, “A Survey on Big Data & Privacy Preserving Publishing Techniques”, Advances in Computational Sciences and Technology ISSN 0973-6107 Volume 10, Number 3 (2017) pp. 395-408
14. Big Data Security and Privacy Challenges by Abdullah Al-Shomrani, Fathy Eassa, Kamal Jambi
15. A. Katal, Wazid M, and Goudar R.H. "Big data: Issues, challenges, tools and Good practices."; Noida: 2013, pp. 404 – 409, 8-10 Aug. 2013.

# THE STUDY OF BIG DATA IN E-COMMERCE

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## **ABSTRACT:**

*Big data is the collection by traditional computing techniques of large data sets that cannot be processed. Big data is not just data; it has slightly become a whole topic that includes a range of instruments, techniques and frameworks. It refers to the use of complex data sets to concentrate, guide and determine within a business or organisation. This is done by the introduction of applicable programmes to correctly and fully understand the information obtained by analysing company data. In our study paper, we spoke about the various types of kept data, their inverse usage for e-commerce and different ways of providing data protection and security when it is used in bulky services, and how e-commerce can use applications effectively over big data.*

**Keywords:** Click-Stream Data, Web- Analytics, Predictive Analysis, Personalization, Dynamic Analysis.

## **1. INTRODUCTION:**

Big data is an ever-changing concept. There are a wide number of structured and unstructured data available for information purposes. These data sets are very broad and complex and are not processed by conventional data processing. In several fields, broad data is used. In order that the business evaluated in form of these e-commerce services may benefit most users of the organisations, we shall be able to assess the impact of Big Data Analytics in changing the electronic commerce business since information on the data is collected on a daily basis.

Many major distributors appreciate the information generated by this data and help them predict the consumer desires of the information and provide their customers with a relative and interesting quest to attract the customer by making the search of the product or product required and acceptable. These preferences are developed from the analysis of big data. Big data consist of two data types, one structured and one unstructured.

The structured data addresses basic and standard data such as name and address. Unstructured data processes numerful data that is accessed which contains videos from sites such as social media. This knowledge plays an important role for e-commerce companies that can serve consumers better. E-commerce companies and online retailers are attracting consumers with online advertising in order to offer better services to this dynamic and fast world. The research methods for the different data and knowledge are split into very basic online approaches. Due to the large amount of data from various sources and in different formats, decisions can be optimised.

These are the focus of Big Data where it gives out superior, data driven outputs.

Utilization of big data in ecommerce is given below

- Big data plays the most important role in providing the consumer with a better experience in using the website and also in trying to fulfil the user's needs in a relevant search.
- Predictive analytics was used to forecast consumer interest and behaviours to supply the appropriate goods and to fulfil the demand by making accurate online ads based on predictive data.
- Big data is used to personalise user information such as mail id and address, which in turn personalise user information to increase the conversation rate.
- In order to compete with other retailers, costs of the real-time analysis are altered.

Big data is obtained from various computers, sources and applications. The data is obtained from social media like Facebook; twitter, which includes information published by millions of people worldwide, is called social media data. Stock Exchange data on the decisions taken on the purchase and sale of customers to a share of various firms. Data on the vehicle's distance and usability requires details on transport. Search Engine data that gathers a lot of data from various databases. The data thus obtained consists mainly of 3 types of structured, relation and unstructuring data (for example, phrase, pdf, text and semistructured data, for example XML).

## **2. RELATED WORK:**

When the organisation is made online to satisfy customer demand and desires, big data play an important role. This study shows clearly that Data Analytics can be used to enable businesses to boost their performance, and deliver the best services efficiently for customers. Furthermore, Data Analytics means that the goods are customised in terms of consumer preference and their price aspects. In addition to enhancing brand awareness and loyalty, this will help

attract and procure clients. It offers invaluable insights into process development through the seller and buyer networks, in addition to growing revenue opportunities for businesses. Data analytics often allow businesses to capitalise on their data, as self-service options save costs. In conclusion, it highlights the need for improved sales efficiency, as discussed in [1].

In the paper, [2] the author Shahriar Akter and Samuel Fosso Wamba addressed the various forms of big data used in e-commerce. The first category is online transactive information that deals with the sale of merchandise and offers numerous other on-line services such as amazon, eBay and Expedia. When these truncations use data, which are further narrowly defined by click-flow data (c and d) voice data (a or business operation data (b). The e-commerce information which plays a key role in personalising the The use of browsing customers and transactional behaviour offers and their interest pattern.

Year	Growth in the number of e-commerce customers worldwide (in millions)	Growth in e-commerce sales per customer worldwide (in US\$)	Growth in big data analytics (BDA) market worldwide (in billions)
2011	792.6	1162	7.3
2012	903.6	1243	11.8
2013	1015.8	1318	18.6
2014	1124.3	1399	28.5
2015	1238.5	1459	38.4
2016	1321.4	1513	45.3

Source: Adapted from eMarketer (2013) and (Piatetsky, 2014)

Fig 1 :Global growth in e-commerce and big data analytics

Top most vendors such as Amazon and eBay have operated their creative networks and reliable products recommendation systems with indicative transactional market services. The growth of web analytics, cloud computing and social media platforms is leading to major companies such as Google, Amazon and Facebook. Compared with conventional trading documents and e-commerce transactional record the e-commerce data are less structured and contains more customer opinion and their behaviour interest which is been discussed in [3].

TABLE I  
 APPLICATIONS FROM BIG IMPACT TO BIG DATA

Factors	E-Commerce and Market Intelligence	Security and Public Safety
Applications	<ul style="list-style-type: none"> <li>• Recommender systems</li> <li>• Social media monitoring and analysis</li> <li>• Crowd-sourcing systems</li> </ul>	<ul style="list-style-type: none"> <li>• Crime analysis</li> <li>• Computational criminology</li> <li>• Terrorism informatics</li> <li>• Cyber security</li> </ul>
Data	<ul style="list-style-type: none"> <li>• Search and user logs</li> <li>• Customer transaction records</li> <li>• Customer generated content</li> </ul>	<ul style="list-style-type: none"> <li>*Criminal records</li> <li>*Crime maps</li> <li>*Criminal networks News and web contents</li> <li>*Terrorism incident databases</li> <li>* Viruses, cyber attacks, and botnets</li> </ul>
Analytics	<ul style="list-style-type: none"> <li>• Association rule mining</li> <li>• Database segmentation and clustering</li> <li>• Anomaly detection</li> <li>• Graph mining</li> <li>• Social network analysis</li> <li>• Text and web analytics</li> <li>• Sentiment and affect analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Criminal association rule mining and clustering</li> <li>• Criminal network analysis</li> <li>• Spatial-temporal analysis and visualization</li> <li>• Multilingual text analytics</li> <li>• Sentiment and affect analysis</li> <li>• Cyber attacks analysis and attribution</li> </ul>
Impacts	Long-tail	Improved public

	marketing, targeted and personalized recommendation, increased sale and customer satisfaction	safety and security
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Web mining usually leads to problems when e-commerce is implemented. Any of the questions will be discussed below. Automatic timeouts of user sessions must be seen as the key parameters used for implementation in retailers because data mining intelligent algorithms can not be used without interactive time systems and user applications have to rely on organisational constraints.

This varies from organisation to organisation and user type. The other problem is that larger customers lose their purchase carts due to time outs, since the data mining application-based algorithm fixes the normal time session so that the customer can unmanageably execute his sessions. The other challenges are logging millions of transactions that are another expensive exercise. While the random samples do not have complete data, it might be worth making the necessary logs for the individual user sessions so that obligatory information can be stored and accessed in an intelligent manner. This requires techniques to be created.

Another problem is the design of UI forms because the user form must be built very intelligently to allow the user to enter these values, as some users have found that the default values have been left unchanged. Right granularity mining data is important. If this is not the case, the data mining exercises could not yield a correct result; an example was discussed in [4].

Big data consisting of structured and unstructured data offers electrical-oriented businesses more opportunities. In this case data from the internal processes, suppliers, markets and business climate of customers are collected. [5] The e-commerce data mining method, with three algorithms: association, clustering and prediction, has been addressed in this paper. In terms of customer relations, basket research, business requirements preparation and marketing, some of the advantages of data mining in e-commerce are discussed. The data mining task was addressed in order to make the model comprehensible to business users and help the business users, to make it usable for users to slowly alter data dimensions, to convert the data and to create the models. Top most vendors such as Amazon and eBay have operated their creative networks and reliable products recommendation systems with indicative transactional market services. The growth of web analytics, cloud computing and Social Media Networks led to key businesses including Google, Amazon and Facebook. Compared with conventional transaction reports, the e-commerce data are less organised and contain more opinions from consumers. Big Data Analytics (BDA) in the latest environment has become more and more relevant. The paper provides an interpretive structure that discusses the basic meanings, distinctive features, styles, market value and challenges of the BDA in e-commerce, though, not much of the work has been done on the basis of its experimental improvisation of the business. the scenery. This paper also addresses future research problems and theoretical and practical opportunities. Big data is obtained from various computers, sources and applications. The data is retrieved from social media, including Facebook, which includes the data shared by millions of people all over the world. Stock Exchange data on the decisions taken on the purchase and sale of customers to a share of various firms.

TABLE 2: GLOBAL GROWTH IN BIG DATA AND DATA ANALYTICS

Year	Growth in the number of e-commerce customers worldwide (in millions)	Growth in e-commerce sales per customer worldwide (in US\$)	Growth in big data analytics (BDA) market worldwide (in billions)
2011	792.6	1162	7.3
2012	903.6	1243	11.8
2013	1015.8	1318	18.6
2014	1124.3	1399	28.5
2015	1228.5	1459	38.4
2016	1321.4	1513	45.3

Source: Adapted from emarketer (2013) and (Piatetsky 2014)

The study includes analytics used to learn many new things about big data and business analysis, which allow us to learn many ways to use their applications in real-time environments. Big data sellers learn to anticipate customer strategy and to learn all the optimum techniques to obtain the best results and services in line with their

search interest. As stated in the document [7], experimental data are collected and the negotiation process is subject to intelligent algorithms. The amount of data generated and collected is massive, which are stored and processed by current computer techniques. The company aims to monitor their data through Big Data Analytics in order to enhance their business efficiency. There are now various methods for big data analysis, such as predictive analytics, descriptive analytics and survival analysis. There are few already developed methods and techniques for linear regression and logistic regression, neural networks and supporting vector machines. These techniques are used in various fields of business such as retail, marketing, fraud detection, customer relations, social network research, etc .[8]

Marketing can be automated with any of the digital marketing instruments, which also lead to analytical data extraction. Big data is one of the most current developments in marketing. There was a mistake (Lee 2007; Chaffey, Smith 2008; Davidavicienc 2012; Wang et al. 2009).

The majority of scientific studies deal with the evaluation of the effectiveness and the consistency or efficiency of online marketing or advertising campaigns (Cao, Zhang, Seydel 2005; Davidavicienc, Tolvaišas 2011); however little attention was paid to the identification and definition of the target electronic spaces and the difficulties presented by them The most popular scientific studies are:

2008; Kawase 2011; Zeb 2011; PabedinskaitC, ŠliavaitC 2012); discussed different ways to encourage the use of online browsing tools, for instance, and the actions of various generational users are all important components of big data. They also discussed how to motivate the use of online browsing tools.

There is no ideal description in the presence of the word BigData, the most frequently used definition is for three words such as volume, speed and variety often referred to as 3 – Variety refers to the heterogeneous existence of structured and unstructured data, speed refers to data collection and volume refers to data volume. (Switzerland, 2011) (Edosio, 2014). Due to these features, it is unable to handle and analyse large data using conventional databases and thus big data can be handled well with specialised tools and technology such as hadoop and file systems. Data management can include processes such as storage; real-time research ads may be used for unique data extraction algorithms such as clustering algorithms and machine study algorithms (Fan et al., 2013). The study of data analytics is been categorised into three types, they are as follows:

Social Media Analytics: considers the social media data which are generally huge in size or large volume of data (Hea et al., 2013)

Predictive Analytics: Considers to use data which are used for forecasting the consumer behaviour and trends (Mosavi & Vaezipour, 2013).

Mobile Analytics: This considers data generated from mobile phones, tablets and other (Li & Du, 2012). [10]

Currently, businesses oriented towards e-commerce should examine the need for large quantities of data and goods, consumers and transactions, as well as the significance and the many other consequences associated with the efficient deployment of big data technology.

Big data applications in e-commerce offer new opportunities for rapid customer-specific product and service adaptation increase the collaboration process between value chains of the partners and, ultimately, significantly decrease co-sets. [11]

E-commerce tackles safety concerns in its internal networks slowly. There are requirements for applications protecting and networks for the implementation of e-commerce systems. Customer training on security issues is still a rising level, but it is still the most important part of the security infrastructure for the e-commerce industry. Trojan horse systems have the biggest e-commerce threat to the customer server. These codes can be mounted on a remote device, through which the safety of personal information is becoming an important concern of customers to identify robbers and other problems of this sort, in order to enhance user services and also the security of their data which is shared on the big data. [13] Address the number and scale of transactions involved in the transaction while e-commerce is mostly viewed as an online transaction, online payments include small transactions and larger transactions. The transaction's size often varies with the business transaction's economy. Sometimes, shipping costs also matter, if one item is imported and shipped internationally, it is more expensive than or more costly to buy the goods in bulk, so cost controls also play a vital role in increasing enterprises and organisations that are reflected on both customers and businesses, particularly when dealing with it.

Big data consisting of structured and unstructured data offers electrical-oriented businesses more opportunities. In this case, data from the internal processes, suppliers, markets and business climate of customers are collected. [5] The e-commerce data mining method, with three algorithms: association, clustering and prediction, has been addressed in this paper. In terms of customer relations, basket research, business requirements preparation and marketing, some of the advantages of data mining in e-commerce are discussed. The data-mining

task was addressed in order to make the model comprehensible to business users and help the business users, to make it usable for users to slowly alter data dimensions, to convert the data and to create the models. The leading providers such as Amazon and eBay with their creative sites have received indicative transactional business services. The recent technology focuses on common techniques and more applications that allow more data to develop and be secure. The unstructured. The unstructured. Our organised social media information spread across many computer systems is a source of information that is both pertinent and irrelevant. References from an e-commerce website are advertising-like and can attract traffic and raise profits. The research application tests both traffic and income to determine the impact factor for each medium. Social media are becoming prominent daily and allow consumers to express their views about the common internet as items are being treated on the opinion before buying the goods, based on the consumer opinion analysis, there will be input or review on each item to buy the category-oriented goods, just as the company wishes to monetize. This analysis of the world shows that e-commerce not only purchases and sells through the web, it also increases the efficiency to compete with other giants in the industry. Inevitably their views on certain subjects rely on a variety of social effects, such as user expectations, peer influence, user profile information. [16]

### 3. BIG DATA FOR E-COMMERCE:

Big data is used by online buyers and sellers to better shop, sell the goods, obtain good customer communication, enhance services and satisfy consumers so as to produce greater sales. So e-commerce companies benefit from big data:

- Distribute more precious.
- More custom experiences to distribute.
- Create reliable forecasts.
- Diminish the rejection rate of the shopping cart.
- Offers improved service for consumers with supplies.

For example when it comes to online food sales, Amazon's big data survey for online shopping shows no. 1 already, bagging a 22% share of 2015 against Wal-13%. Mart's This helps businesses to find their status to grow with the competition in specific stores and is also easy to find and compare with other online stores.



Fig 2: Amazon Gross merchandise volume

#### A. Big Data Challenges

The major challenges associated with big data are as follows:

- Capture related information's
- Storage space
- searching of related information's
- Sharing
- Transfer
- Analysis
- Presentation

Big data are used to give more accurate analysis, which leads to give out the best decision, compete with other organization, cost reduction, risk reduction and effective customer services.

#### 4. CONCLUSION:

Since Big Data are used in many industries, E-commerce services are widely affected and play an important role in decision-making. In e-commerce, large retailers use big data huge numbers respect this information and help them anticipate the consumer preferences and make reasonably interested searches for their customers while shopping on their website in order to attract customers by offering essential and effective searches for items or objects. The researchers will use the related data from this survey document to identify appropriate and challenging systems that allow both consumers and retailers to increase the benefits of the use of big data to electronic commerce. In this dynamic, fast-paced world, consumers primarily use online publicity or search engines to minimise real-time market inefficiency. Enterprises will find their job status

Unique product, which can expand with competition and easily find and compare it with other online stores. In our survey paper, we focused on the types of data that the related processing steps contain as input and output. In the heart of big data analysis, there are various technologies available. The discussion of different papers says that the Hadoop server offers a flexible and economical platform to process data as one of the best techniques. Online retailers are saying that they are using big information to boost their shopping experience, to satisfy consumers and to create more sales. Big data affect performance and productivity positively. Areas such as record relation, graphical analysis and machine learning showed that this was essential to applications. Open source HPCC Systems offers a single framework that can be controlled and coded easily enabled. The integrated Machine Learning computational library allows the study of big data by users.

Our study paper helps to define a number of Big Data applications on e-commerce so that we know about the value of Big Data and its components. In addition, we speak about the e-Commerce problem so that researchers can focus on and broaden their work on the big data problems if the big data does not contribute to that. Big data analysis' last challenge is to create market value through its big data explosion. The key problems related to big data have also been addressed so that we can expand our study in order to find a solution to one of those challenges. Researchers will learn about Big Data problems and the major challenges involved. And you can get succinct information on broad data to help you broaden your research on big data in the area of e-commerce.

#### REFERENCES:

- Ahmad Ghandour-"Big Data Driven E-Commerce Architecture",International Journal of Economics, Commerce and Management,ISSN 2348 0386 Vol. III, Issue 5, pp:940-947,May 2015.
- ShahriarAkter and Samuel FossoWamba-"Big data analytics in e- commerce: A systematic review and agenda for future research",Electronic Markets 26 173-194, 2016.
- HsinchunChen,Roger H. L. Chiang and Veda C. Storey-"Business Intelligence And Analytics:From Big Data To Big Impact",MIS Quarterly Vol. 36 No. 4, pp. 1165-1188,December 2012.
- Arti, SunitaChoudhary and G.N Purohit-"Role of Web Mining in E-Commerce",International Journal of Advanced Research in Computer and Communication Engineering,ISSN (Online) : 2278- 1021:ISSN (Print) : 2319-5940 Vol. 4, Issue 1, pp:-251-253,January 2015
- Mustapha Ismail, Mohammed Mansur Ibrahim, Zayyan Mahmoud Sanusiand MuesserNat,"Data Mining in Electronic Commerce: Benefits and Challenges, -International .Communications, Network and System Sciences,pp:501-509,December 2015.

# THE STUDY OF DEVELOPMENT OPPORTUNITIES IN TOURISM SECTOR IN MAHARASHTRA

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## ABSTRACT:

Voyaging and investigating new things is the idea of each individual. Presently an all day's persons is stressed out and need some change from routine activities. Individuals visit new places to value their magnificence, in course of time, has brought forth present day industry called tourism. Maharashtra is the third largest state in India having 36 districts and each district is drawing in thousands of tourist visitors. Travel and tourism is the largest service industry in India. It is normal that tourism sectors commitment to the nation's Gross Domestic Product will develop at the pace of 7.8% yearly in the period 2013-2013. In 2013 the movement and tourism industry contributed Rs. 2,170 billion or 2% to the nation's GDP. This is relied upon to rise to Rs. 4,350 billion in the year 2024. The Paper attempts to focus on the accompanying:-

1. To know the drivers behind increase in tourist traffic
2. To think about various destinations in Maharashtra
3. To discover the purpose of visit to the state
4. To understand the movements conduct of the visitors.
5. To know the Reasons for choosing this state as a tourist destination.
6. To discover the Names of top 10 destinations in Maharashtra.
7. To ascertain the Most visited tourist destination.
8. To think about the Satisfaction level of services by Visitor

The tourism industry in Maharashtra is substantial and lively, and is fast turning into a significant worldwide destination.

## 1. INTRODUCTION:

Tourism means encountering a culture, area, language, cuisine and activities unique in relation to one's own. Maharashtra's way of life and legacy has to be preserved, conserved and elevated to create tourism. Most of the villages in Maharashtra is having the capacity to draw in tourist, but since of the deficient infrastructural facilities, it is missing behind.

Drivers behind increase in Tourist Traffic Domestic Tourist Traffic

1. Quickly increasing purchasing intensity of the center class.
2. Better street availability.
3. Developing lifestyle

International Tourist Traffic

1. Incentive for cash/practical occasion destination.
2. Business cum pleasure destination.
3. Opening of the sectors of the economy to private sector/unfamiliar investment.
4. Change in the flying sector such as Open Skies Policy has prompted better network with numerous countries with India

Table 1: District Wise Tourist Destination List

District	Destination
Ahmednagar	Shirdi, Shanisignapur Siddhivinayak Siddhatek, Ahmednagar fort, Newas, Rehakuri Black BlackSanctury, Bhandardara (Dam), Revakudi Ahmadnagar, Amruteshwar Ratanwadi
Akola	Narmala wildlife sanctuary/ Fort,Balapur Fort, Kurankhed, Mahan, Popatkhed Bird Sanchury, Postal,Raja Mir Chaatri, Vaari Katepurna WLS
Amravati	Gugamal National park/ MelghatTiger Projet, Salbardi (Chakradher Swami Mandir), Belkund (Maleghat), Ambadevi & EkviraTemple, Chaurakund Chikhaldara, Chunkhadi Jarida, Dhargad Maleghat, Ghatang Satpuda, Harisal Maleghat, Jarida Maleghat East, Khatkali Maleghat, Kolkas Maleghat, Kotku Maleghat, Makhala Maleghat, Paratvada Maleghat Rangubeli Maleghat, Tarubandha Maleghat, Melghat Tiger Project Amner Fort, Amaravati, Bakadari And Kalalkund DHARKHURA, Gawilgad Muktagiri, Raipur Chikhaldhara, Rashtr Sant Tukdoji Maharaj Gurukunj, Asharam Mojhri, Ridhapur , Wan WLS (Semadoha Chikhaldhara) Dnyanganga WLS

<b>Aurangabad</b>	Ajanta, Daultabad Fort, Ellora, Bibika Makbara, Grishneshwar (Jyotirling), Shri Bhadra Maruti Temple, Paithan Jayakwadi ( Paithani Sari), Aurangabad Daultabad Devigiri, Jayakwadi, Maish Maal, Pithalkhora, Tara Paanwala, The Gautala Forest Reserve, Verul, Naygaon Mayur WLS,
<b>Beed</b>	Kapildhera (Ashram Of Kapilmuni), Parali Vaishnath, Ambejogai, Anand Gadh, Ashvalinga Temple, Bankat Swami Temple, Beed, Beteshwar Temple, Bhagwan Gadh, Dargah Neknoor, Dev Dahiphall, Gorakshanath Temple, Jarud, Kille Dharur, Lmba Ganesh, Mukunraj, Nagnath Temple Manur, Naigaon Peacock Sanctuary, Namalgaon, Navagan Rajuri, Pohicha Dev, Purushottam Puri, Rakshbhuvani Shani Dev, Sautada,
<b>Bhandara</b>	Ambagar Fort, Chinchgad, Dighod, Brahmi, Andhalgaon, Bhandara Chandpur Dam, Chaundeshwari Devi, Gaimukh, Koka Sanctury, Pauni Fort, Pawni, Sangarh
<b>Buldhana</b>	Sheogaon (Samadhi of Gajanan Maharaj), Datyasudan Temple, Lonar Crater, Balaji Temple, Fardapur, Hiwara Ashram Vivekanand, Sailani Baba Dargah, Sant Gajanan Maharaj Sheogaon, Sindkhedara, Ambabarva WLS,
<b>Chandrapur</b>	Nagbhir (Ghodajhart) Picnic Spot, Tadoba Tadoba nationalpark (TATR), Anandwan Ashram,
<b>Dhule</b>	Anerdam Wildlife Sanctuary, Balasane, Bhamragarh Wild Life Sanchtuary, Laling, Nakane Lake, Songir,
<b>Gadchiroli</b>	Jinganur (Bhamergargh Wildlife Sanctuary), Aheri Ta Aheri, Chaprala Wild Life Sanctuary, Markanda Deo Ta Chamorshi,
<b>Gondia</b>	Nayagaon Wild Life Sanctuary (NNTR), Hajra Fall, Ngzira Wild Life Sanctuary,
<b>Hingoli</b>	Aundha Nagnath (Jyotirling), Hingoli, Mallinath Digambar Jain Temple, Sant Namdev Sansthan Narsi, Tulajadevi Sansthan, Narsi Namdev,
<b>Jalgaon</b>	Unapdev hot Spring mouth Like GOMUKH Adavad, Pal Yaval Sanctuary, Parola Fort, Swinging Towers of Farkande, Changdev Maharaj Bhusawai, Amainer Tirath (Like Pandherpur) /Amalner Fort Patandevi Temple,
<b>Jalna</b>	Shree Ganesh of Raju, The Matsyodari Devi Temple & Motibagh Jamb Samartha, Anandi Swami Temple, Jamb Samarth,Kali Masjid, Mamma Devi, Mastyodari Dev
<b>Kolhapur</b>	Radhanagari (Dazipur Wild Life Santuary, Vishalgad Fort, Panhalafort, Rankala lake, Mahalaxmi Temple, Maharaja Palace, Shalini Palace Museum, Bhubali Teerthakshtra Kumboj, Dajipur Bison Sanctuary, Gaganbawda, Jotiba, Khirdrapur, Kolhapur, Kolhapur Museum Town Hall, Koppeshwar, Narsobachi Wadi Siddhagiri
<b>Latur</b>	City park, Ausa Fort, Ganj Golai, Hajrat Pir Pasha Dargah, Hattibet Devarjan, Kharosa Caves, Lord Mahadev Temple Hippalgaon, Renuka Devi Temple, Shirur Anatpal, Siddheshwar, Udgir, Wadwal Nagnath Hill Wadwal Nagnath,
<b>Mumbai</b>	Gateway of India, Prince of wales museum, Jahangir art gallery, Marine Drive, Hanging Garden, Mahalaxmi temple, Haji Ali, Juhu Beach, Sidhivinayak, Chhatrapati Shivaji Terminus Victoria Terminus Girgaon Chowpatty, RBI Monetray Museum, Lonad Caves, Shiv Temple of Ambarnath, SGNP The Borvali National Park, Erangal Mumbai, Malabar hill, Elephanta caves, Nehru Planetarium, Tungarveshwar Sanctuary, Yeur Sanctuary
<b>Mumbai Sub</b>	Sanjay Gandhi National park, Kanheri Caves, Mahakali Caves, Girlbert Hill, Andheri, Juhu Chowpatty, Aksa Beach, Madh Island
<b>Nagpur</b>	Kanhan, Pench National park, Ramtek (Shri Ram Temple), Ambazari Lake, Balaji Temple, Maharaj Baug zoo, Ambhora, Central Museum Ajab Bangla, Deeksha BHUMI, Gandhi Sagar Lake, Japanese Rose Garden, Kalidas Smarak And Festival, Kasturchand Park, Khekrangala Lake in Nagpur, Khindsi Lake, Lake Garden Sakkardara Mansar, Marbat Festival, Markanda, Nagardhan Fort, Umred–Karhandala WLS, Narrow Gauge Rail Museum, Raman Science Centre, Satpuda Botanical Garden, Shegoan, Sitabuldi Fort, Tipeshawar-TADOBA, Mansingdeo WLS, Zero Mile,
<b>Nandurbar</b>	Taranmal Toranmal shiv temple, Hidimba's forest, Sardar Sarovar Project kevadia dam Fort Akka Rani Historical Well of Tawalal, Sideshwar Temple
<b>Nasik</b>	Trimbakeshwari (Jyotirling), Pandavcaves, Sinhastha Kumbh Mela (Punchvati Godavari Ghat), Lgatpuri (Kalsubai-Harish Chandragarh WLS), Coins Anjaneri, Gangapur Dam, Gangoti Crystals, Kalaramram Mandir, Mangi Tungi, Nandur Madhyamshwar Bird Sanctuary, Nashk City, Ozarkhed Dam, Ozar Vigneshwara, Panchvati, Pandavleni Caves, Saptashringi Van, Shri Ghodeshwar Temple Sinnar
<b>Nanded</b>	Sahastra kund, Painganga wildlife, Mahurgad, Nanded Fort Sachkant Gurudwara, Hottal Temple, Kandhar, Kinwat Reserve Forest, Mahur Caves, Masjid Of Biloli, Takht Sachkhand Shri Hazur

	Abchalnagar Sahib, Unkeshwar Hot Springs, Vishnupuri Dam, Akkarani Fort, Asthamba, Nagardhan, Sarangkhedha, Sardar Sarovar Project Kevadia Dam
<b>Osmanabad</b>	Ramlingam ghat, Dharashiv Caves Balaghat Mountains, Tulja Devi, Nidurg, Naidurg Fort, Osmanabad, Paranda Fort, Saint Goroba Kaka Mandir, Shri Tuljabhavani Mandir Tulijapur, Yedai Devi Yermukh
<b>Parbhani</b>	Hajarat Turabul Huq, Pathri, Shirdi Sai baba Janmshtan Mandir, Balaji Mandir Dashahara, Datta Mandir, Nemagiri, Sant Janabai Mandir, Shri Neminath Jain Mandir
<b>Pune</b>	Shivheri Fort, Bhimashanker (Jyotriling), Aland (Samradhi of Sant Driyaneshwari), Lonavala, Khandala, Lohagad, Karia Caves, Dehu (Mahasamadhi Of Sant Tukaram), Kelkar Museum, Sinhgad (Fort), Ranjangaon (Ashtvinayak), Shaniwatwada, Khadakwasala, (Dam), Panchet (Dam) Pune Chowpatri, Agha Khan Place, Chattri (Architecture Memorial), Katraj Garden, Parvati (hill and Temple Oldest heritage), Pataleshwar Caves, Moregaon (Ashtvinayak), Rajgarh Fort, Torna Fort, Theur (ashtvinayak), Amruteshwar Bhor, Bedse Caves, Bhaje, Darya Ghat, Dehu Alandi, Dhakoba, Hot Air Baloon Kamshet, Jejuri, Joshi Miniature Railway Museum, Kalote Lake, Kapuskar, Karla Caves, Kathingad Tung, Koraigad, Kukdeshwar, Lenyadri Ashtavinayak, Lonawala Bushi Dam, Manas Resorts, Manikdoh, Manikgad And Savne Lake at food hills of Manikgad Mrityunjeshwar, Mulshi Lake, Nadhai Lake, Naney Ghat, Ozar Vighneshwar Astvinayak, Panshet, Para Gliding Hadapsar, Potholes Of Nighoj, Purundar Fort, Rajmachi, Shinde Ka Chattri (Architecture Memorial), The Dr Ambedkar Museum And Memorial, The Lokmanya Tilak Museum, The Raj Dinkar Kelkar Museum, The Rock Bridge Of Gulanchawadi, The Salt Pillar of Vadgoan Darya, Khurondar Fort,
<b>Raighad</b>	Jeuri khandoba of khandobachi temple, Matheran, Alibag Fort, Mandva, Murud-Janjira, Phansad wildlife sanctuary, Harihareshwar, Mahad (Ashtavinayak), AVACHITA GAD, Bankot FORT, Bhilawale Lake, Birwadi Fort, Chanderi, Chandragad, Chaul Temple, Diveagar, Elephanta, Gadeshwar Lake, Ghosalgad, Hot Spring at Sav, Kanakeshwar, Kangauri Fort, Karnala Bird Sanctuary, Kashid Raigad, Kaula Fort, Kihim Beach, Korlai, Kothligad, Kuda, Lingana Fort, Mandva, Mangad, Meera Hill, Murud Janjira, Pali Ballaleshwar Ashtavinayak, Raigad Raigadh Fort, Ratnagad, SAGARGAD, Sankshi Fort, Shivthargal, Shrivadhan, Songiri Fort, Akshi Nagao Beach, Sudhangad, Tadgoan, Talgad, The Gandhaar Pali Caves, The Kamarkar Museum, The Murud Forests, The Thanale Khadsamble Caves, The Wood Exhibits of Kolad, Uddar Unhere, Varandha Ghat, Vishramgad, White Water Rafting Raigad
<b>Ratnagiri</b>	Harnai Beach, Ganpatipule, Ganga/Hot Water Spring, Ambolga, Anjarle, Arevare, Bhandarpule, Bhatye Suruban, Chiplun, Derwan, Fort of Kohoj, Ganesh Gule, Govalkotgad, GUHAGAR, Harnai Fort, Hedavi, Jaigad, Kanaledurg, Kelshi, Lote Parshuram, Mahagarh Beach, Marleshwar, Napaane Vaibhavwadi, Pawas, Purnagad Fort, Ratnadurg Fort, Ratnagad, Ratnagiri, Suwarnadurg, Tilak Birth Place, Velas, Velneshwar
<b>Sangli</b>	Chandoli Wildlife Sanctuary, Sagarshwar Wildlife Sanctuary, Audumbar, Kundai Jain Temple, Sangali, Shirala,
<b>Satara</b>	Mahabale/prapgarh fort, Panchgani, Shri Bhavani Museum, Thosegarh water fall, Kaslake, Ajinkyatra/Sajahgarh, Koyna lake, Ajinkyatara Fort, Aundh Museum, Bannoli and its Periphery, Bangnoli, Bhairvgad, Bhopalgad Bhushasgad, Chandan Vandan Gad, Dategad Patan, Gondawale Maharaj Math, Gunvantgad, Kaas Pathar, Kalyangad, Kyona Forest Reserve, Machhindragad, Morgaon, Pardeshwar, Phaltan, Pandavgad, Pratapgad, Sadashivgad, Sajjangadh, Shikar Signapur, Shivsagar Lake, Sitabai Hill, Tapola Lake, The Satara Museum, Vairatgad, Vardhangad Kahatav, Vasantgad Karad, Vasota, Wai, Wathar Nimbalkar,
<b>Sindhurg</b>	Malvan beach, Fort, Tarkarli, Vijaydurg fort, Amboli Waterfalls, Achara Beach, Arunda Creek, Bhogwe Beach, Chiwla, Dashavtar, Devbaug, Dhamapur, Dodamarg Talkot, Kharepatan, Kunkeshwar, Napapne Waterfalls, Nivati, Pinguri, Sagarshwar Beach, Sawantwadi, Shiroda Beach, Sindhurg Fort Malvan, Sindhudurga, Tondavali, Vengurla,
<b>Solapur</b>	Kundalsangam, Akalkote, Pandharpur, Mangalwedha, Akkalkot, Akluj, Nannaj Bird Sanctuary (GIB), Solapur
<b>Thane</b>	Kelve Beach, Fort And And Dame, Ganeshpuri (swaminityanand Maharaj), Purtgali Fort, Ambernath (shiv Temple)/Ganesh Temple in Titwala, Aahupe Ghat, Ajoba Mountain, Akloli, Bhoj Lake, Bilya Mountain, Bordi, Davkop Lake, Fort of Kohoj, Gambhirgad, Kakuli Lake, Khodala Jawahar Mokhada Devbandh Suryamal, Kukdeshwar Lake, Malshej Ghat, Pallu Waterfall,

	Pandavgad, Sakhre Lake, Satpati, Tansa Sanchury, The Pelher Lake, The Surya River Area, Tilsa, Titwala, Tungareshwar, Upper Vaitarna, Vandri Lake & hot Spring At Satvali, Vasai Bassein, Vihigoan Village Water fall ,Vikramgad,
<b>Wardha</b>	Sevagram, Bor Dam, Bor Wildlife Sanctuary, Dhaga, Gandhi Gyan Mandir, Garpit, Girad, Gitai Mandir Temple, Hue EN SANG Dhamma Camp Centre & Stup, Kelzer, Laxmi Narayana Mandir Temple Magan Sangrahalaya, Paunar Paramdham Ashram, Vishwa ShantiStup,
<b>Washim</b>	Shirpur (Parshwanath Digamber Jain Mandir), Padmateerth, Balaji, Chamunda Devi, Darga Tarhala, Shri Nath Nange Maharaj Temple Dawha, Shri Sakharam Maharaj Temple,
<b>Yavatmal</b>	Kalamb Tipeswar Sanctury, Ghatanji & Kaleshwar, Chintamani Ganesh Temple, Kapeshwar, Pohara Devi Manora, Shri Ranganath Swami, Tipeswar Bird & Wildlife Sanctuary, Umerkhed Wildlife Sanctuary

## 2. METHODOLOGY:

An exploratory research is used in the study. This study was designed to find out the Development of Tourism in Maharashtra. 250 tourists were taken as sample for this research. For collecting information, structured questionnaire was prepared. It was not possible to visit each and every destination personally. The data was collected by giving questionnaires at Bus station, Railway station and Airport and some through mail and telephonic conversation.

Table 2: Purpose of visit by Visitors (%)

Purpose	Domestic overnight	SameDay	Foreign
<b>Business</b>	12	8.6	17.4
<b>Holidays,Leisure &amp; Recreation</b>	45.5	53.1	62.8
<b>SocialActivity</b>	5.5	2.6	0
<b>Pilgrimage /Religious Activity</b>	24.6	14.2	6.3
<b>Education /Training</b>	2.6	4.6	3.2
<b>Health &amp; Medical</b>	3.8	2.4	5.7
<b>Shopping</b>	2.8	3.9	2.8
<b>Others</b>	3.2	10.6	1.8
<b>Total</b>	100	100	100

Tourist when asked about the purpose of visit, 45.5% domestic overnight visitors, 53.1% same day visitors and 62.8% of foreign visitors prefer it for holiday for leisure and recreation while religious activity was next preferred.

Table 3: Travel Behavior of Visitors (%)

Travel Behavior	Domestic Overnight	Domestic Same Day	Foreign Overnight
<b>Once a week or more often</b>	4.3	3.9	0
<b>Once a fortnight</b>	3.8	6.1	0
<b>Once a month</b>	4.5	21.3	0
<b>Once in 3 months</b>	5.1	1.7	0
<b>Once in 6 months</b>	8.3	7.8	1.3
<b>Once in a Year</b>	70.2	51.6	19.5
<b>Less Often</b>	3.8	7.6	79.2
<b>Total</b>	100	100	100

It was observed that Domestic overnight visitors and Domestic same day visitors travel at least once in a year while foreign overnight visitors travel less often.

Table 4: Reasons for choosing this state as a tourist destination (%)

Reason	Domestic	Foreign
<b>Location of preferred destination</b>	87.8	81.5
<b>Visiting Friends and relatives or for Business and Professional Purposes.</b>	36.6	8.5
<b>Nearer to the Place of Residence</b>	58.1	0
<b>Better infrastructure.</b>	95.6	93.86
<b>Less costly.</b>	8.7	0

Attracted by Publicity Measures.	76.7	76.5
Others	8.4	5.3

Many respondents had given mixed opinion about choosing Maharashtra as tourist destination.

**Table 5: Names of top 10 destinations in Maharashtra are given in Table**

Shirdi	Gateway of India
Ellora	Juhu Chowpatti
Gateway of India	Tadoba Tiger project
Tadoba Tiger project	Marine Drive
Elephanta Caves	Ellora
Mahalakshmi Temple Mumbai	Lonovala
Mahalakshmi Temple, Kolhapur	Khandala
Lonovala	Haji Ali
Khandala	Agha Khan Palace

**Table 6: Most visited tourist destination of Sample Visitors (in %)**

Most visited tourist destination	Domestic Overnight Visitors	Domestic Same Day Visitors	Foreign Overnight Visitors	Total
Ellora	24.3	75.5	0.2	100
Shirdi	20.5	79.3	0.2	100
Gateway of India	14.3	81.1	4.6	100
Tulja Devi	12.5	87.5	0	100
Dharashiv Caves Balaghat Mountains	9.3	90.7	0	100
Shanishapur	15.5	83.3	1.2	100
Juhu Chowpatti	18.7	80.3	1.0	100
Daultabad Fort	19.9	79.8	0.3	100
Mahalaxmi temple	20.1	77.1	3.8	100

**Table 7: Satisfaction level of services by Domestic Overnight Visitors (%)**

Satisfaction	Domestic overnight visitors				
	Highly Satisfied	Satisfied	Satisfied but not completely	Unsatisfied	Completely dissatisfied
Availability of Tour Operator	5.7	48.3	37.4	8.6	0
Availability of Transportation	3.2	46.8	48.6	1.4	0
Availability of Tourist Guide	9.5	80.4	10.1	0	0
Quality of accommodation	10.8	57.3	25.4	6.5	0
Public Convenience	4.9	65.6	23.7	5.8	0
Eating Places	33.7	50.2	11.5	4.6	0
Information Centers	1.4	61.5	33.9	3.2	0
Souvenir Shops	0	46.4	50.8	2.8	0
Entertainment Places	41.5	56.4	2.1	0	0
Quality of Roads	0	22.5	72.9	4.6	0
Security	0	33.8	51.7	14.5	0
Behavior of Local People	34.8	60.6	4.6	0	0
Shops other than souvenir	0	69.6	22.5	7.9	0
Upkeep of tourist sites	0	51.2	28.7	13.6	6.5
Accommodation tariff	0	46.4	9.5	25.7	18.4
Quality of Information	23.1	46.6	24.7	5.6	0

68% of the respondents agreed that the most popular destinations in Maharashtra are overloaded 24% disagreed and 4% were neutral. The respondents were of the opinion that there is unplanned development and overcrowding at eco-sensitive zones like Panchgani and Mahabaleshwar. The respondents suggested that Bhandardara in the Sahyadris, Amboli can take the pressure off Mahabaleshwar. When the respondents were asked about the development of tourism because of forts, they said the state has unique history of forts 76% agreed, and 18 were neutral and 6% showed disagreement. Those who agreed were majorly of the opinion that Maharashtra is the only state in the whole world having highest number of forts. The glorious Maratha history of which we is so proud would not have been possible without these forts. Today, these forts lie in ruins. Their history, architecture and their purpose are a unique factor which has not been sufficiently capitalized upon. The Sahyadri mountain range in the Western Ghats as a potential tourist destination is totally neglected. The Sahyadris are a trekker's paradise. It is a potential hot spot for nature trails, camping, guided nature walks and trekking. The Sahyadri ranges are even used for preparatory climbing by many trekking enthusiasts before embarking for the Himalayas. A Sahyadri mountain range institute can be established to train and conduct trekking camps on the lines of the Himalayan Mountaineering Institute. There are numerous historical 'wadas' in and around Pune belonging to Mahatma Phule, Lokmanya Tilak and other eminent personalities. The history of social reform in Maharashtra and even in India cannot be told without a reference to these locations. There is a general air of unconcern about conservation and maintenance of these monuments. If they were to be revived, conserved and promoted properly, a new form of historical tourism can take place. Maharashtra is home to several forests and tiger reserves. Besides Nagpur, there are tiger reserves in Sahyadri, Nagzira, Bor and Sindhudurg. Setting up ecological resorts and tourism centers will help to boost the employment opportunities for the locals and maintain and the resort.

### 3. CONCLUSION:

Tourism development is on going, gradual and continuous process, Maharashtra has a long way to go if it has to be portrayed to the whole world. For development of tourism in Maharashtra, long-term plans should be set with creativity and freethinking. Maharashtra tourism industry should provide scope for local entrepreneurship, so that it will provide dynamic environment for the local communities to grow and become one of the powerful tools of economic growth.

### REFERENCES:

1. Ashish Ankush Naik, D. S. (2013). A Social Aspect of Tourism Development in India. International Journal of Advanced Research in Computer Science and Software Engineering, 995-998.
2. Bhatia, A. (2007). Tourism Development: Principles and Practices. New Delhi: Sterling Publishers Pvt. Ltd.
3. Dr. T.P Madhu Nair, S. G. (2014). Inclusive Growth For Tourism Development in India with Special Reference to the State of Maharashtra. Abhinav International Monthly Referred Journal of Research in Management and Technology, Volume 3 (8), 11-15.
4. Joshi, D. V. (2014). Development and Marketing of Tourism in Maharashtra. International Journal of Management and Business Studies, 21-25.
5. Khan, M. (2005). Introduction to Tourism. New Delhi: Anmol Publication Pvt. Ltd.
6. Sharma, K. (2004). Tourism and Socio- Cultural Development. New Delhi: Sarup & Sons.
7. Singh, S. (2006). Travel and Tourism Management. Jaipur: ABD Publishers.
8. A Study on Development of Tourism in Maharashtra by Dr. B. K Deshpande, Mrs. Reetuja Deshpande
9. Tiwary, D. A. (2015). Tourism Development of Vindhyachal, Mirzapur, U.p. India. International Journal of Research in Economics and Social Sciences, 127-138.

# STUDY OF THE GROUND STATES OF SiS MOLECULE WITH REDUCED POTENTIAL ENERGY CURVE.

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## ABSTRACT:

The diatomic SiS molecule is spectroscopically studied by many workers. The accurate ground state constants of this molecule derived from latest Fourier Transform spectroscopic analysis are used to construct the RKR curves. The Hulbert-Hirschfelder, extended Rydberg and Zavitias potential energy functions are used and are compared with their respective RKR curves. The error curves are also studied. The Reduced Potential Energy Curves (RPCs) of this molecule is also constructed. It was found that these curves obey the rules of RPC's.

## 1. INTRODUCTION:

The knowledge of potential energy curves is of prime importance in the study of diatomic molecular spectra [1]. In the calculations of F.C. factors, dissociation energies and thermodynamic quantities etc, the studies of potential energy curves are necessary. The empirical potential energy functions like Hulbert-Hirschfelder [2,3], extended Rydberg [4,5] and Zavitias function [6,7] are usually applied and the potential energy curves are drawn. For all these calculations, the Rydberg Klien Rees- Vanderslice RKR [8-11] curves are essential. Naturally, to compute the turning points of various vibrational levels the accurate spectroscopic constants are required. The empirical potential functions also require these molecular constants. In the present study the potential energy curves for the ground electronic states are constructed for the diatomic molecule SiS. There is one more technique through which the Reduced Potential energy curves (RPC's)[12] could be constructed. This method is also employed to construct the RPC's of these molecules.

## 2. CHOICE OF MOLECULES AND EXPERIMENTAL DETAILS:

SiS band assignment were established by isotopic and rotational structure studies. For SiS, the 2100-2400A<sup>0</sup> bands arise out of transitions from the 0 ≤ v ≤ 15 vibrational levels of the E<sup>1</sup>Σ<sup>+</sup> state to the 0 ≤ v ≤ 9 vibrational levels of the X<sup>1</sup>Σ<sup>+</sup> state, while the 3500-6600A<sup>0</sup> bands involve transitions from the 0 ≤ v ≤ 17 levels in the E<sup>1</sup>Σ<sup>+</sup> state to the 20 ≤ v ≤ 51 levels of the X<sup>1</sup>Σ<sup>+</sup> state [13-16]. The unusual occurrence of E-X bands of SiS in two distinct regions is related to the relative positions of the potential energy curves involve in these transitions. Furthermore, since some of these radicals have been observed in the interstellar medium [17-19] the unusual intensity distribution among the E-X bands may be expected to have a bearing on the population distribution among high-lying vibrational levels in the ground electronic state (X<sup>1</sup>Σ<sup>+</sup>). The molecular constants derived from these studies are reported in Table 1.

## 3. THE POTENTIAL ENERGY FUNCTIONS

**3.1. The Hulbert-Hirschfelder potential function:** This function [2,3] is an extension of a Morse function and is defined as follows.

$$U_{H-H}(r) = D_e \left\{ \left[ 1 - \exp(-x) \right]^2 + cx^3 (1 + bx) e^{-2x} \right\} \dots\dots\dots (1)$$

Where  $x = x_1(r - r_e)$ ;  $x_1 = (\omega_e x_e / B_e)^{1/2} / r_e$

$$c = 1 + a_1 (D_e / a_0)^2; b = 2 - \{ [(7/12) - (D_e - (a_2 / a_0))] / c \}$$

$$a_0 = \omega_e^2 / 4 B_e; a_1 = -1 - \{ \omega_e x_e / (6 B_e)^2 \} \quad \text{and}$$

$$a_2 = (5/4) a_1 - (2/3) (\omega_e x_e / B_e)$$

This function employees the spectroscopic constants like  $\omega_e$ ,  $\omega_e x_e$ ,  $B_e$  and  $D_e$  etc. The potential energies  $U_{H-H}$  could be calculated by substituting the values of the constants and  $r$  values obtained from the RKR data and the relevant parameters.

### 3.2. The extended Rydberg Potential function

Murrell and Sorbie [4] and Huxley and Murrell [5] have suggested a potential function, which is based on the force field parameters and is similar to Rydberg potential function. It has the form

$$U_{\text{exR}} = D_e - D_e \{ 1 + a_1\rho + a_2\rho^2 + a_3\rho^3 \} e^{-a\rho} \quad \dots\dots\dots (2)$$

Where  $\rho = r - r_e$ ;  $a_1, a_2$  and  $a_3$  are the constants defined through following discussions. These constants should not be confused with the constants appearing in H-H function. The constant  $a_1$  is determined from the solution of the following quartic equation :

$$D_e a_1^4 - 6 f_2 a_1^2 - 4 f_3 a_1 - f_4 = 0 \quad \dots\dots\dots (3)$$

The parameters  $f_2, f_3, f_4$  are called force field parameters and are defined as :

$$\begin{aligned} f_2 &= 4 \pi^2 \mu \omega_e^2 c^2 \\ f_3 &= - (3 f_2 / r_e) [1 + (\alpha_e \omega_e / 6 B_e)^2] \\ f_4 &= (f_3 / r_e)^2 \{ 15 [1 + (\alpha_e \omega_e / 6 B_e)^2] - (8 \omega_e x_e / B_e) \} \end{aligned}$$

Usually the largest positive root of equation (3) is selected as  $a_1$ . The other parameters  $a_2, a_3$  and  $a_4$  appearing in equation (2) could be calculated from following equations:

$$\begin{aligned} a_2 &= (1/2) [a_1^2 - (f_2 / D_e)] \\ a_3 &= (a_1 a_2 - (a_1^3 / 3) - (f_3 / 6 D_e)) \end{aligned}$$

This potential function was studied further and was compared with Dimitreva– Zenevich [20] potential function by Bhartiya and Behere[21]. This potential was applied by Birajdar [22] to a large number of molecules and found to give satisfactory results.

**3.3. THE ZAVITSAS POTENTIAL ENERGY FUNCTION.**

This recently suggested potential function by Zavitsas [6,7] is based on electronegativities of the constituent atoms forming a diatomic molecule. This function is also a modification of Morse function but the constant  $\beta$  appearing in Morse / function is no more a constant in this function. The function is

$$U_z ( r ) = D_e [ \exp ( -2 \beta_{\pm} x ) - 2 \exp ( \beta_{\pm} x ) ] \quad \dots\dots\dots (4)$$

$$\beta_M = 8.486 (k_N)^{1/2} \quad ; \quad x = r - r_e \quad , \quad \text{Where } k_N = k_e / D_e .$$

The variables  $\beta_{\pm}$  are calculated separately for  $r < r_e$  and  $r > r_e$ .

$$\text{For } r < r_e \quad \beta_{-} = \beta_M \{ 1 + m u^{1/2} \}$$

$$\text{For } r > r_e \quad \beta_{+} = \beta_M \{ 1 + a_1 u^{1/2} + a_2 u^n + a_3 u^{3n} + a_4 u^{5n} \}$$

$$\text{Where, } u = \exp (-2 \beta_M x) - 2 \exp (-\beta_M x) + 1$$

$$\text{For all species } a_1 = -0.32m; a_2 = 0.15; a_3 = 0.2 - 0.6m \text{ and } a_4 = (0.21 - 3m) (\Delta \chi)^2$$

$m$  and  $n$  are calculated as follows :

$$m = - 0.025 r_e + [0.70 \exp (- 7.41 \times 10^3 k_N r_N) / z_1 z_2] + 0.042 \quad | \Delta \chi |$$

And

$$n = 0.70 - 0.03 r_e + 0.096 / (10^3 \times k_N r_N - 0.3) + [0.55 (\Delta \chi)^2 / r_e^{1/2}]$$

$$\text{Where } r_N = r_e / D_e$$

Zavitsas has taken  $D_e$  in kcal/mol, bond length in  $\text{Å}$  and  $\omega_e$  in  $\text{cm}^{-1}$ ,  $\mu$  is in amu the electronegativity difference  $|\Delta\chi|$  is from Pauling scale [16]. We also retained same units but finally converted the energies in  $\text{cm}^{-1}$  which otherwise come in kilocalories.

#### 4. THE REDUCED POTENTIAL ENERGY CURVES:

The method suggested by Jenc [12] uses the RKR data. The reduced potential energy curves are drawn between two parameters namely  $\rho$  on X axis and  $u + 1$  on Y axis

$$u = U/D_e \text{ where } U = \sum C_i (v + 1/2)^i \quad \dots (5)$$

$C_i$  are vibrational constants like  $C_1 = \omega_e$ ,  $C_2 = -\omega_e x_e$ ,  $C_3 = \omega_e y_e$  etc.  $D_e$  is dissociation energy.

$$\rho = \frac{r - [1 - \exp(-r/\rho_{ij})] \rho_{ij}}{\dots} \quad \dots (6)$$

Where  $r_e$  is equilibrium internuclear separation and  $\rho_{ij}$  can be calculated as follows,

$$\rho_{ij} = \frac{r_e - [(3.96) D_e/\kappa_e]^{1/2}}{\dots} \quad \dots (7)$$

Where  $\kappa_e$  is a force constant.

The reduced quantities fulfill following conditions.

- i)  $\rho \geq 0$
- ii)  $\rho = 0$  for  $r = 0$
- iii)  $\rho = 1$  for  $r = r_e$
- iv)  $\rho \rightarrow \infty$  for  $r \rightarrow \infty$
- v)  $u \leq 0$  for  $U \leq 0$
- vi)  $u = 0$  for  $U = 0$
- vii)  $u \rightarrow \infty$  for  $U \rightarrow \infty$
- viii)  $u = -1$  for  $U = -D_e$

#### 4.1 Properties of RPC

- a) The RPC's of different molecules never intersect.
- b) The RPC's of diatomic molecules slightly differing in both atomic numbers coincide.
- c) While keeping one atomic number constant a considerable change in the values of other effect than a relatively small change in the values of both atomic numbers. This fact is clear in the RPC's of heavy hydrides.
- d) In general the shape of RPC turns slowly to the right around the minimum while becoming broader.
- e) Rare gas molecules does not follow the rule number 2, 3 and 4. The RPC's of rare gas molecules coincide approximately to each other and form a right hand boundary of the admissible RPC region.
- f) All RPC including excited state lie in RPC region.
- g) The approximate coincidence mentioned in rule 2 and 5 is very accurate in repulsive limb.

It was found that deviations from the above rule in the RPC's of the diatomic molecules might appear suggesting the possible existence of perturbation in the state or because of erroneous extrapolation of the RKR potential.

The applications of RPC could be as follows:

- i) It can detect the errors in the construction of RKR.
- ii) It can be used to detect errors in molecular constants.
- iii) It can detect the errors in analysis of a spectrum due to perturbations or otherwise.

#### 5. COMPUTATIONAL PROCEDURE:

The data of turning points i.e.  $r_{\min}$  and  $r_{\max}$  values obtained from RKR curve of this molecule is substituted in equations 1, 2 and 4 respectively for H-H, extended Rydberg and Zavitsas potential functions along with the corresponding parameters shown in Table 2. The potential energies obtained plotted against  $r$  values yield a potential energy curve for that potential for that particular molecule. For comparison purposes all the potential energy curves of each molecule are drawn on same scale along with RKR curve. These curves are shown in Fig 1 along with their error curves i.e. the % deviation from RKR energies.

**Table 1: Spectroscopic constants of the ground states of SiS molecule**

Molecule/Constants	M	$\omega_e$	$\omega_e X_e$	$\omega_e Y_e$	$B_e$	$\alpha_e$	$D_e$	$r_e$	References
SiS	14.9206889	749.64	2.57	0.0005	0.30353	0.00147	51993.01240	1.929321	23,24

Note: All constants are in  $\text{cm}^{-1}$  except  $r_e$ , which is in Å and  $\mu$ , is in amu

**Table.2: Parameters of H-H, extended Rydberg and RPC potentials for the ground state of SiS molecule**

H-H Parameters	
$a_0$	462853.875
$a_1$	-2.993496894
$a_2$	5.556588172
$c$	-3.296502865
$b$	-10.390618324
$x_1$	1.5464824438
Extended Rydberg Parameters	
$a_1$	2.776684
$a_2$	1.445739
$a_3$	0.616449
Zavitsas Parameters	
$B_m$	1.546992
$\kappa_e$	4.940595
$\kappa_n$	0.033243
$r_n$	0.012981
$Z_1$	3.8
$Z_2$	5.1
$e_1$	1.9
$e_2$	2.58
$M$	-0.0182
$N$	1.555022
$a_1$	0.005823
$a_2$	0.15
$a_3$	0.210918
$a_4$	0.122347
RPC Parameter	
$\rho_{ij}$	0.578696

## 6. RESULTS AND DISCUSSION:

For the study of potential energy curves, the molecule is chosen SiS was the basic radical. The PE curves are drawn which shows PE's around 62% of the  $D_e$ . The Zavitsas Potential energy curves distinctly deviate from RKR. As per discussion with Zavitsas, the potential is mainly suitable for covalent molecules rather than ionic molecules. Moreover, the electro negativity values of the atoms forming a diatomic molecule also can cause deviations. The H-H and Extended Rydberg potential functions almost overlap on each other and fall in between the Zavitsas and RKR curves. The error comparison shows that nearly 3 to 4% deviations occur in the potential energies from RKR values. The RPC's of ground state of SiS is constructed. The programmes used earlier calculated the RKR turning points and latest molecular constants were used and along with the molecular parameters which are presented in Table 2. The corresponding graphs of RKR and RPC are shown in Figures 2(a) and 2(b).

These RPC curves show similarity with the corresponding RKR curves, which is one of the criteria obeyed by RPC. All of them show minima at (1,1) i.e.  $\rho = 1$  and  $u + 1 = 1$ .

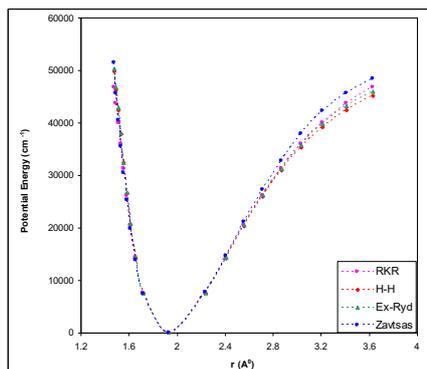


Figure 1 (a): RKR, H-H, Extended- Rydberg & Zavitsas Potential energy curves for the ground state of SiS molecule

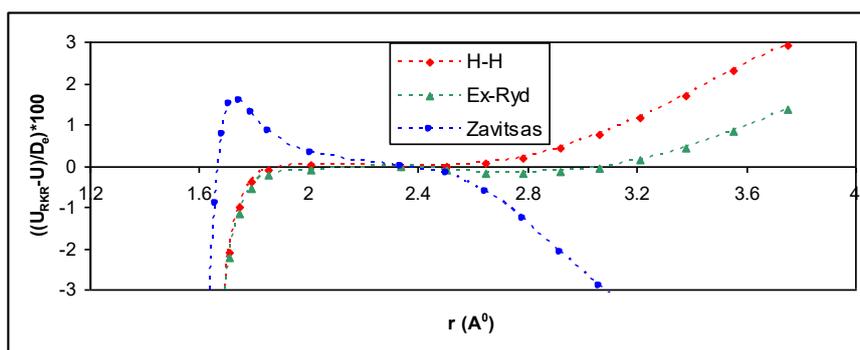


Figure 1 (b): % Deviation of H-H, Extended- Rydberg & Zavitsas Potential energy curves for the ground state of SiS molecule

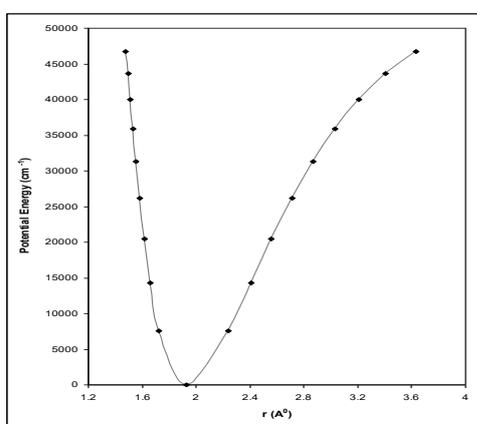


Figure 2 (a):

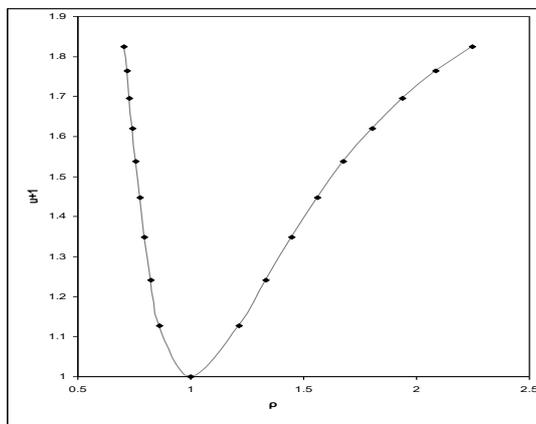


Figure 2 (b):

RKR Potential energy curve for the ground state of Si molecule

RPC of the ground state of SiS molecule

#### REFERENCES:

- [1] Hertzberg G., *Spectra of diatomic molecules*, Van Nostrand Reinhold Company, New York, (1950)
- [2] Hulbert H. M. and Hirschfelder J. O., *J. Chem. Phys.* **9**, 61 (1941)
- [3] Hulbert H. M. and Hirschfelder J. O., *J. Chem. Phys* **35**, 1901 (1961)
- [4] Murrell J N and Sorbie K S, *Faraday, Tranjections*, **70**, 1152 (1974)
- [5] Huxely P and Murrell J N, *J. Chem. Soc. Faraday*, **7A**, part 2, 323 (1983)
- [6] Zavitsas A. A., *J. Amer. Chem. Soc.* **113**, 13, 4755 (1991)
- [7] Zavitsas A. A., *J. Mol. Spectros.* **221**, 67, (2003)
- [8] Rydberg R., *Phys.* **73**, 376 (1931)
- [9] Klien O., *Z. Phys.* **76**, 226 (1932)
- [10] Rees. A. L. G., *Proc. Phys. Soc. London Sect. A*, **59**, 998 (1947).
- [11] Vanderslice. J. T, Mason E. A., Maisch W. G and Lippincott E. R., *J. Mol. Spectros.* **5**, 83 (1960)

- [12] Jenc F., *International Reviews in Physical Chemistry* **15**, 2, 467 (1996)
- [13] S.J.Q.Robinson and R.F.Barrow, *Proc. Phys. Soc. A* **67**, 95 (1954)
- [14] R.F.Barrow, J.L.Deutsch, A. Lagerqvist, and B.Westerlund, *Proc. Phys. Soc.* **78**, 1307 (1961)
- [15] S.Gopal, G. Laximinarayana, and N.A.Narasimham, *J. Phys.* **B8**, 3781 (1980).
- [16] G.Lakshiminarayana and B.J.Shetty, S.Gopal, *J. Molec. Spectrosc.* **112**, 1 (1985).
- [17] M.Morris, W. Gilmore, P. Palmer, B.E. Turner, and B. Zuckermann, *Astrophys. J.* **199**, L47 (1975)
- [18] N.Kaifu, D.Buhl, and L.E.Snyder, *Astrophys. J.* **195**, 359 (1975).
- [19] D.Buhl, L.E. Snyder, F.J. Lovas, and D.R.Johnson, *Astrophys. J.* **201**, L29 (1975).
- [20] Dimitreva J. K and Zenevich V. A *Chem. Phys. Lett* **96**, 228 (1983)
- [21] Bhartiya J. B. & Behere S. H. *J. Quant. Spectrosc. Radiat. Transfer* **42**,2,163(1989)
- [22] Birajdar S.V. Ph.D thesis. *Comparative Studies in Diatomic Molecular Potential Energy Functions (2001) Dr. Babasaheb Ambedkar Marathwada University, Aurangabad (MS), India.*
- [23] Huber K P and Herzberg G, *Constants of diatomic molecules*, Van Nostrand Reinhold Company, New York (1979).
- [24] Sunanda K, Sheila G, Shetty B J and Lakshminarayana G, *J. Quant. Spectrosc. Radiat. Transfer*, **42**, 631-634 (1989).

# PARTICLE SIZE STUDY OF CD-SUBSTITUTED COBALT FERRITE SYNTHESIZED BY SOL-GEL AUTO-COMBUSTION METHOD

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## ABSTRACT:

The ultra-fine samples of the ferrite series  $Co_{1-x}Cd_xFe_2O_4$  (where,  $x= 0.0, 0.1, 0.2, 0.3, 0.4, 0.5$ ) synthesized by using sol-gel auto combustion method. Using X-ray diffraction (XRD) pattern, the prepared samples confirm the formation of single-phase cubic spinel structure. The lattice constant calculated by using XRD and it is increases with increase in Cd contents. Using XRD data the particle size is calculated by Scherrer formula considering the high intensity strongest peak of (311). Particle size is also determined by scanning electron microscopy (SEM) technique. The nano dimension values of particle size are obtained in the range of 17 to 33 nm scale by both methods.

**Keywords:** X-ray diffraction, SEM, Particle size, nanometer.

## 1. INTRODUCTION:

Nano materials are cornerstones of nanoscience and nanotechnology. Now days Nano ferrites play a useful role in many magnetic applications because their electrical conductivity is relatively low in comparison with that of magnetic metals. The spinel ferrites are extensively used in electromagnetic devices such as memories, sensors and microwaves in modern information technology applications [1]. They possess special magnetic and electrical properties with high chemical stability and mechanical hardness. Cobalt ferrites and substituted cobalt ferrite are in demand, due to these properties, for magnetic recording devices, magneto-optical recording and electronic devices [2]. Cd-Co ferrites to report increase in lattice parameter and X-ray density with  $Cd^{2+}$  contents [3]. The particle size of the material plays very important role in nano structure science. There are various applications are depends on size of the particle. This papers reports synthesis method of Cd substituted Cobalt Nano ferrite by sol-gel auto combustion method and determination of particle size by XRD and SEM technique.

## 2. EXPERIMENTAL:

The ultrafine samples of the ferrite series  $Co_{1-x}Cd_xFe_2O_4$  (where,  $x= 0.0, 0.1, 0.2, 0.3, 0.4, 0.5$ ) prepared by using Sol-Gel auto combustion method. The starting samples have A. R. grade nitrates and molar ratio of metal nitrates to citric acid was taken as 1:3. An aqueous solution of citric acid was mixed with metal nitrates solution, then ammonia solution was slowly added to adjust the pH at 7. The mixed solution was kept on to a hot plate at  $90^{\circ}C$ ; the solution became viscous and finally formed a very viscous blackish-brown gel. When all water molecules were removed from the mixture, the viscous gel began frothing. When the auto-ignition was completed then black-coloured ashes is formed. The obtained powder was then subjected to temperature  $400^{\circ}C$  for six hours. The final product is then grinded and subjected to further study.

The steps of formation of ultra-fine samples of the ferrite series  $Co_{1-x}Cd_xFe_2O_4$  as shown in the following photograph Fig.1



**Fig.1:** Steps of formation of  $Co_{1-x}Cd_xFe_2O_4$  Nano ferrite

### 3. RESULTS AND DISCUSSION:

The structural parameters were determined and confirmed by the XRD technique to confirm the single Nano-phase formation of  $\text{Co}_{1-x}\text{Cd}_x\text{Fe}_2\text{O}_4$  system where,  $x = 0.0, 0.1, 0.2, 0.3, 0.4$  and  $0.5$ . The XRD pattern of all the composition show that all the peak corresponding to cubic spinel structure without any impurity peak. Due to the random orientation of the crystallites in the sample, a reflection at the particular position is due to a set of atomic planes which are satisfying Bragg's diffraction law [4] given as,

$$2d \sin\theta = n\lambda$$

Where,  $d$  is the inter planer spacing,

$\theta$  is the Bragg angle,

$n$  is the order and

$\lambda$  is the wavelength of the spectrum.

In the XRD patterns of ferrites all the Bragg's reflections are allowed peaks have been indexed. The strongest reflection has come from (311) plane that indicates spinel phase. Lattice constant ( $a$ ) of all compositions were calculated by using the formula,

$$a = d\sqrt{N} \text{ \AA}$$

Where,  $N = h^2 + k^2 + l^2$ ,

$d$  is the inter planer spacing.

The values of lattice constant are shown in **Table.1**. Particle size is calculated from XRD, which corresponds to nm scale.

#### 3.1. Particle size using XRD pattern

The particle size 't' obtained from XRD patterns. The average particle size of the prepared samples was determined by Scherrer formula [5] (stated below) using the high intensity strongest peak of (311).

$$t = \frac{k\lambda}{\beta \cos\theta}$$

Where,  $t'$  is the crystallite size in  $\text{\AA}$ ,

$\lambda$  is the wave length ( $=1.5405\text{\AA}$ ),

$k$  is a constant ( $= 0.94$ ),

$\beta$  is the broadening of the diffraction peak and

$\theta$  is the diffraction angle.

The values of particle size are in 22 nm to 33 nm range represented in **Table.1**.

**Table.1**

Lattice constant and particle size of  $\text{Co}_{1+x}\text{Cd}_x\text{Fe}_2\text{O}_4$  Nano ferrite ( $x = 0.0$  to  $0.5$ ) system

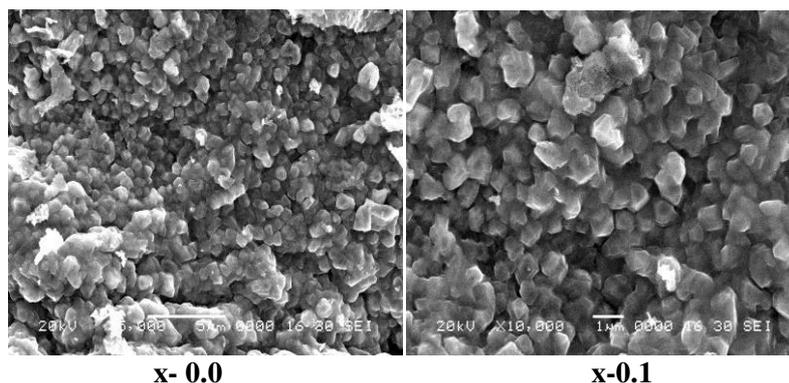
Cd content x	Lattice constant 'a' ( $\text{\AA}$ )	Particle size 't' (nm)	
		XRD	SEM
0.0	8.3652	33.27	33
0.1	8.3662	29.36	30
0.2	8.3738	29.35	31
0.3	8.3840	17.84	18
0.4	8.3951	27.72	26
0.5	8.3976	22.68	24

#### 3.2. SCANNING ELECTRON MORPHOLOGY (SEM)

The scanning electron microscopy (SEM) is one of the powerful techniques used to analyse the microstructure of the ferrites. The SEM is used for determination of the grain size, porosity, grain boundary. The SEM microstructure is affected ions concentration as well as by method of preparation. The crystallite size also determined and confirmed from SEM. The SEM images of typical sample  $x=0.0$  and  $x=0.1$  are given in **Fig.2**.

The particle size obtained from SEM are varies in between 18 nm to 33 nm and the obtained values are given in **Table 1**. Small amount of pores in SEM images (**Fig.2**) reveals that the sintering is done in a satisfactory manner for all the specimens. The effect of increasing cadmium content on the investigated samples is the enhancement of the grain growth

as seen from the scanning electron micrographs [6]. Uniform grains are progressively increased with increasing  $\text{Cd}^{2+}$  content  $x$ .



**Fig.2:** Scanning electron micrograph typical sample  $x = 0.0, 0.1$  of  $\text{Co}_{1-x}\text{Cd}_x\text{Fe}_2\text{O}_4$  ferrite

#### 4. CONCLUSIONS:

The Nano-crystalline cadmium substituted cobalt ferrites were synthesized successfully by using sol-gel auto combustion technique. The following are the conclusions are drawn front the present investigations. The X-ray powder diffraction pattern shows the formation of cubic spinel structure of all the samples. The particle size from XRD pattern is in the range 18-33 nm whereas the crystallite size by SEM is in between the range 17 - 33 nm. Both the vales are close to each other. SEM study reveals that the grain size of all the samples is in nanometer dimension.

#### ACKNOWLEDGEMENT:

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#### REFERENCES:

- [1]. Dalawai S. P., Shinde T. J., Gadkari A. B. and Vasambekar P. N., Bull. Mater. Sci., (36)-5, (2013) 919
- [2]. Gaikwad R. S., Chae S. Y., Mane R. S., Han S. H. and Joo O S, Int. J. Electrochem (2011) 56
- [3]. Nikumbh A. K., Nagawade A. V., Bakare P. P. 2001 J. Mater. Sci. 36 653.
- [4]. Cullity B. D. and Stock S. R., Elements of X-ray diffraction (New York: Prentice Hall), (2001), 154
- [5]. A. Mahesh Kumar, P. Appa Rao, M. C. Varma, G. S. V., R. K. Choudary, and K. H. Rao, Journal of Modern Physics, 2, (2011) 1083-1087.
- [6]. C. R. Stein, M. T. S. Bezerra, G. H. A. Holanda, J. Andr ´e-Filho, and P. C. Morais, AIP Advances 8, (2018) 056303-056306.

## AUTOMATION AUDIT

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### ABSTRACT:

*Ecosystem combines people, process and technology within an overall business environment. Computer Based Systems like information Technology (IT) or Information Systems (IS) Business Applications: (a) Packaged Software (b) Small ERPs. Used in small Medium business (C) ERP applications used in Medium to Large companies. Technology infrastructure and the Physical & Environment.*

**Keywords:** *Popole, Database, operating system, Storage devices, Network devices, Networks, Physical and environmental.*

### 1. INTRODUCTION:

An automated environment is an ecosystem that combines people, processes and technology within an overall business environment.

The Automated Environment is driven by Computer Based System which are also known as Information Technology (IT) System or Information (IS)

There are several types of applications that could exist in a business depending on several factors including the nature size, location of a business. They are broadly categorized as follows System.

Business Applications:

Category	Examples
Packaged Software (also called off-the-shelf applications) used by Micro and Small business	For example, Tally, QuickBooks
Small ERPs used in Small to Medium business	For example, Tally ERP, SAP Business one, Focus ERP
ERP applications used in Medium to Large companies	For example, SAP R/3, Oracle R12, Oracle R12 Enterprise Business Suit

Technology Infrastructure and the Physical & Environmental Aspect:

Database	Oracle 12g MS-SQL Server
Operating System	Windows, Unix, Linux
Storage devices	Disk, Tapes, Network Storage
Network devices	Switches, Routers and Firewalls
Networks	Local Area Network, Wide Area Network. Virtual Private Networks, etc.,
Physical and environmental	Access to IT faculties, CCTVs, Temperature Control, Firefighting Equipment etc.

### 1.1 AUDITING IN REAL-TIME ENVIRONMENT:

A Real-Time Environment is a type of Automated Environment in which business operations and transactions are initiated, processed and recorded immediately as they happen without delay.

IT Components: A Real-Time Environment has several critical IT components that enable anytime, anywhere transactions to take place. They include:

Components	Examples
Applications	ERP Applications, SAP, Oracle R12, Core Banking Application
Middleware	Web Servers like Apache, ATM Switches
Network	Wide Area Network like Apache, ATM Hosting
Hardware	Data Centers, Backup and Storage Devices, Power Supply

### 1.2 RISK INVOLVED

To facilitate transactions in real-Time, it is essential to have the systems, networks and applications available during all times. Any failure even in one component could render the real-time system unavailable and could result in a loss of revenue.

Most Real-Time Systems and environments are accessible through public domain and internet and hence, they are more likely to be vulnerable to network and cyber attacks including denial of service, distributed denial of service hour due to a malware attack on one of the web servers hosting the portal, the revenue loss could be significant.

Hence, it is critical for Company that operate in a Real-Time Environment to constantly monitor all the IT Components to identify and resolve issues and failures.

### 1.3 UNDERSTANDING AND DOCUMENTING AUTOMATED ENVIRONMENT:

SA 315: The Auditor's understanding of the Automated Environment should include the following  
The application that are being used by the Company.

Details of the IT Infrastructure components for each of the application.

The organization structure and governance.

The Policies, Procedures and Process followed.

IT risks and controls.

The Auditor is required to document the understanding of Company's Automated Environment as per SA 230.

How an Auditor can document details of an Automated Environment:

Application	Used for	Database	Operating System	Network	Storage
SAP R/3	Financial Accounting	Oracle 12g	HP-UX	LAN, WAN	NAS
REVS	Front Desk, Guest, Reservation	MS-SQL Server 2008	Windows 2012 Server	In-house developed	Server Internal HDD
KOTS	Restaurant and Kitchen Orders	MS-SQL Server 2008	Window 2012 Server	In-house developed	Server Internal HDD
BILLSYS	Billing	Oracle 11i	Windows 2008 Server	Packaged Software	Server Internal HDD

### 1.4 CONSIDERATION OF AUTOMATED ENVIRONMENT AT EACH PHASE OF AUDIT CYCLE:

In Controls-based Audit, the audit approach can be classified into 3 broad phases comprising of –(i) Planning, (ii) Execution, and (iii) Completion. In this approach, the considerations of automated environment will be relevant at every phase as follows: -

During Risk Assessment, the Auditor should consider risk arising from the use of IT Systems at the Company.

When obtaining an understanding of the business process and performing walkthroughs the use of IT systems and applications should be considered.

While assessing the Entity Level Controls, the aspects related to IT Governance need to be understood and reviewed.

Pervasive controls including segregation of duties, General IT controls would impact the nature, timing and extent of testing.

When testing of reports and information produced by the entity (IPE) generated through IT systems and applications, at Completion Stage, evaluation of control deficiencies may require using data analytics and CAATs

**Risk Assessment Process:** One of the most critical Component of Enterprise Risk Management is the Risk Assessment process. It involves considerations for –

Qualitative and Quantitative factors, Definition of key performance and Risk Indicators

Risk Appetite

Risk Scores Scales and Maps

Use of data and metrics

Benchmarking

Hence, it is critical for a company that operates in a Real-Time Environment to constantly monitor all the IT Components to identify and resolve issues and failures.

### 2. OBJECTIVES OF THE STUDY:

The following objectives are for the study.

01. To find out the problem in collecting audit evidence.
02. To find out the process of automation audit.
03. To find out technique to collect audit evidence.

### 3. METHODOLOGY OF THE STUDY:

The methodology adopted for the purpose of project study was collection of necessary data from both primary as well as secondary data available on web.

#### Primary data

The data and Information for the study is collected through two main sources. Primary data would be original data from which the researcher will directly collect data that have not been previously collected. Primary data will be firsthand information collected through by the way of various methods such as canvassing.

#### Secondary data

Secondary data like published Annual Reports and statistical tables relating to forensic audit for analyzing the data, the technique of ratio analysis, simple mathematical tools like average, percentage etc. and M.Phil., Ph.D. thesis different, circulars, reference books, Different policies of Private and Government organization pertaining detection of fraud, publication, journals, newspapers, Internet, websites etc. will be thoroughly studied in the said research.

### 4. PROBLEM FACED BY AUTOMATED AUDITOR COLLECTING AUDIT EVIDENCE:

#### 01. The problem of collecting audit evidence :

As the result of manipulation in monetary transaction by management and employee . It is quite difficulty to collect evidence.

#### 02. To problem of destroyed documentation or computer data bank :

It is possible when material misstatement in financial transaction is there for council record. It may possible that important document records or computer data destroyed. As result that it is very difficult to collect evidence by the forensic evidence.

#### 03.To problem of collect evidence from foreign country:

As a result of globalization frequently buy goods/ serviced from abroad and hacking transaction may fraudulent things may happen and it is very difficult to collect evidence.

It is not support system is there to collect such evidence.

#### 04.To problem when person murder or absconding:

It is generally happened that, a crime involved by the political leader, corporate person, under world person, actress and so on. It would be possible some innocent people may murder or absconding. It would be difficult to collect evidence for offering explanation and interrogation and so on.

### 5. PROCESS OF AUTOMATION AUDITING:

#### 01. Initialization

It is often useful to carry out a preliminary investigation prior to the development of a detailed plan of action. This will allow subsequent planning to be based upon a more complete understanding of the issues.

#### 02.Develop Plan:

This plan will take into account the knowledge gained by meeting with the client and carrying out the initial investigation.

This plan will also set out the objectives to be achieved and the methodology to be utilized to accomplish them.

#### 03. Obtain Relevant Evidence:

In order to gather detailed evidence, the investigator must understand the specific type of fraud that has been carried out, and how the fraud has been committed.

The evidence should be sufficient to ultimately prove the identity of the fraudsters, the mechanics of the fraud scheme, and the amount of financial loss suffered.

Investigating team should be skilled to collect evidence so that evidence can be admissible in court and should be preserved carefully until evidence is presented in court.

#### 04.Perform the analysis:

Depending upon nature of assignment, analysis may involve-calculate economic damages,

Summarizing large no of transactions, perform sensitivity analysis etc.

#### 05. Reporting:

Issuing an audit report is the final step of a fraud audit.

Auditor will include sections on the nature of the assignment, scope of the investigation, approach utilized, limitations of scope and findings, recommendations and/or opinions.

## **6. TECHNIQUES USED BY AN AUTOMATION AUDITOR:**

### **01. General audit technique :**

Entity Level Controls:

The control that operates across a Company at all level i.e., from Board and Top Management to the Department and Transaction level are know as Entity Level Controls.

#### **Classification:**

##### **a) Direct Entity Level Controls :**

Direct ELCs operate at a level higher than business activity or transaction level such as a business process or sub-process level, account balance, level at a sufficient level of precision, to prevent, direct or correct a mis-statement in timely manner , Examples -Business performance reviews, monitoring of effectiveness of controls activities by Internal Audit function.

##### **b) Indirect entity level controls:**

It does not relate to any specific business process, transaction or account balance and hence, cannot prevent or detect misstatements. However, they contribute indirectly to the effective operation of Direct ELC and pother control activities. Examples-Company code of conduct and ethics policies, Human resources policies, employee job roles & responsibilities.

### **02. Auditor's Duties:**

- a) Auditors are required to understand, evaluate and validate the entity level controls as a part of an Audit Engagement.
- b) The results of testing Entity Level Controls could have an impact on the nature, time and extent of other audit procedures including testing of controls.
- c) The entity level Controls at a Company are effective, the auditor may consider reducing the number of samples in the test of controls and where the he finds the entity level controls ineffective, he many consider to increase the rigour of testing by increasing sample sizes.
- d) In small and less compels Companies, the entity level Controls may not be formally defined or documented. In such situations, the Auditor should design audit procedures accordingly to obtain evidence of the existence and effectiveness of entity level controls.
- e) Verification of whistle blower policy: The following questions can be used by the Auditor to understand and evaluate the whistle-blower policy in a Company  
Does the company have whistle-blower policy?  
Is this policy documented and approved?  
Has the whistle-blower policy been communicated to all the employees?  
Are employees aware of this policy and understand its purpose and their obligation?  
Has the company taken measure viz, training, to make the employees understand the contents and purpose of the policy?  
Does the company monitor effectiveness of the policy time to time?  
How does the company deal with deviations and non-compliance?

### **03. Process Level Controls:**

#### **a) Requirements of SA 315:**

In an audit of financial statements, the auditor determines the significant balances and disclosures. Auditing standards SA 315 require the auditor to understand the business process that makes up an Account Balance or Financial Statement Line item.

#### **b)Business Process :**

A business process is a sequence of activities that take place from the initiation of transaction, recording it, approving, posting accounting entries and reporting. A Business process is typically made up of sub-process- a logical grouping of related activities.

#### **c) Financial Statement line item:**

Domestic sales account balance in the Financial Statements is an example of an FSLI. The domestic sales account balance represents all the sales transactions that were processed during an accounting period.

#### **d) Understand the Business Process:**

The auditor in identification of, sub-process and activity. He should document this understanding of the Company's Business Process and flow transactions in the Audit File in accordance with SA 330 risks and controls within each process.

#### 04. Statistical and Mathematical Techniques:

Trend analysis and Ratio analysis may use by the auditor.

**Trend Analysis:** Businesses have cycles and seasons much akin to nature itself. An expense or event within a business that would be analogous to a snowy day in the middle of summer is worth investigating. Careful review of your subject organization's historical norms is necessary in *order* for you to be able to discern the outlier event should it arise within your investigation.

**Ratio Analysis:** Another useful fraud detection technique is the calculation of data analysis ratios for key numeric fields. Like financial ratios that give indications of the financial health of a company, data analysis ratios report on the fraud health by identifying possible symptoms of fraud

#### 05. Computer Assisted Auditing Techniques (CAATs):

Changing patterns of businesses, regulatory framework, scarcity of resources at auditors' disposal on one side and the ever-increasing mountainous data on other hand is making audit a complex process. Use of CAATs is, thus, indispensable to the Auditors and forensic auditors. Computer-assisted audit techniques (CAATs) or computer-assisted audit tools and techniques (CAATTs) are computer programs that the auditors use as part of the audit procedures to process data of audit significance contained in a client's information systems, without depending on him.

#### 06. Generalised Audit Software (GAS):

Generalized Audit Software (GAS) is a class of CAATs that allows auditors to undertake data extraction, querying, manipulation, summarization and analytical tasks. GAS focuses on the fully exploiting the data available in the entity's application systems in the pursuit of audit objectives. GAS support auditors by allowing them to examine the entity's data easily, flexibly, independently and interactively in data-based auditing.

**07. Common Software Tool (CST):** Due to shortcomings of GASs, CSTs have become popular over a period. Spreadsheets (like MS Excel, Lotus, etc.), RDBMS (like MS Access, etc.) and Report writers (like Crystal reports, etc.) are few examples of CSTs. Their widespread acceptability is due to its instant availability and lower costs. While spreadsheets may be extremely easy to use due to its simplicity and versatility, other CSTs may need some practice.

#### 08. Data Mining Techniques:

It is a set of assisted techniques designed to automatically mine large volumes of data for new, hidden or unexpected information or patterns.

Data mining techniques are categorized in three ways: Discovery, Predictive modelling and Deviation and Link analysis. It discovers the usual knowledge or patterns in data, without a predefined idea or hypothesis about what the pattern may be, i.e., without any prior knowledge of fraud. It explains various affinities, association, trends and variations in the form of conditional logic.

### 7. CONCLUSION:

An automated environment is an ecosystem that combines people, processes and technology within an overall business environment. An audit of financial statements, the auditor determines the significant balances and disclosures. Auditing standards SA 315 require the auditor to understand the business process. When auditing in an automated environment the auditor should be aware, adhere to and be guided by the various Standards, guidelines and procedures that may be relevant to both audit and the automated environment.

### REFERENCES:

1. Michael Armstrong, A Handbook of Management Technique, Kogan Page India Pvt.Ltd.
2. S.A.Sherlekar & Virendra Sharad Shelekar, Modern Business Organization and Management.
3. International Journal, Ajanta publication, Aurangabad.
4. ICAI study material
5. Advanced Auditing & Professional Ethics by Sandhya Saraf.
6. Advanced Auditing by G Serkar and Saravana Prasath
7. <http://www.en.wikipwdia.org>.
8. <https://www.questia.com/library/journal/1G1-289834350/investigating->

## APPLICATION OF IOT IN RENEWABLE ENERGY

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### ABSTRACT:

*In the twenty-first century the world has seen many important innovations .Electricity plays an important in driving these innovations .In today modern world, industry totally relies on the electricity energy for its operations. We have consumed almost fossil fuels for power generation and for other uses. We have identified alternate affordable and sustainable power generation mechanisms, which we call renewable energy sources.*

*The examples of renewable energy includes wind energy, solar energy, tidal energy etc.*

*Solar energy is prominently used for power generation because of vast availability of sunlight and its simple installations as compare to others.*

*On the other side there are so many constraints which directly or indirectly affect performance and efficiency of the solar power generation system. These technical and environmental constraints can be monitored and analyze by implementing IoT systems, which helps us in selecting site for solar power generation system and understanding environmental situations.*

### 1. INTRODUCTION:

Renewable energy is a source of energy, which is collected from renewable resources, including carbon neutral sources like sunlight, wind, rain, tides, waves, and geothermal heat. The term often also encompasses biomass as well, whose carbon neutral status is under debate.

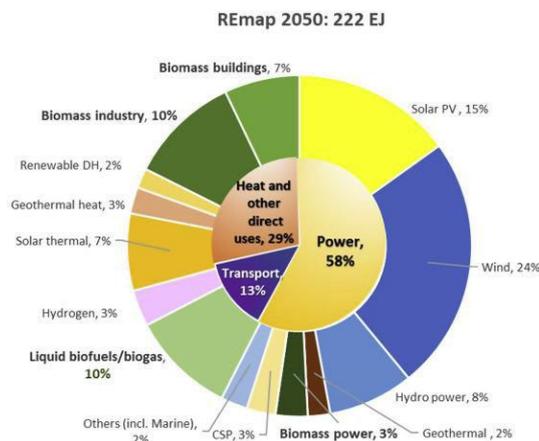


Fig.1Types of renewable energy and, contribution in energy

It is clear from the above statistics, contribution and importance of different renewable sources and their contribution in energy development.

Today there is a huge demand from all the sectors of the industries for energy, which creates a tremendous pressure on the traditional power grid to generate more and more power.

The non-renewable energy sources have their own limitations like, efficiency, availability and pollution.

### Solar Energy:

**Solar energy** is in the form of radiation from the Sun, capable of producing heat, causing chemical reactions, or generating electricity. The total amount of solar energy incident on Earth is vastly in excess of the world's current and anticipated energy requirements. If suitably harnessed, this highly diffused source has the potential to satisfy all future energy needs of the world. In the 21st century solar energy is expected to become increasingly attractive as a renewable energy source because of its inexhaustible supply and its nonpolluting nature, in comparison with the finite fossil fuels like petroleum, coal and natural gas.

The Sun is an extremely powerful, and sunlight is by far the largest source of energy received by Earth, but its intensity at Earth's surface is actually quite less. This is due to the enormous radial spreading of radiation from the distant Sun. A relatively minor additional loss is due to Earth's atmosphere and clouds, which absorb or scatter as around

54 percent of the incoming sunlight. The sunlight that reaches the ground consists of about 50 percent visible light, 45 percent infrared radiation, and smaller amounts of ultraviolet and other forms of electromagnetic radiation.

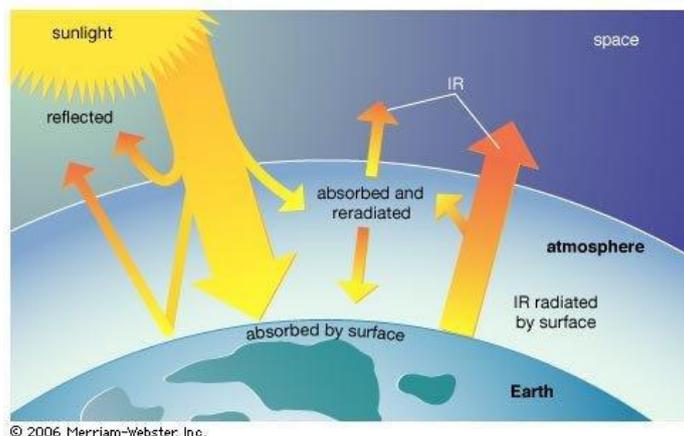


Fig.2 Basic concept of solar power system

## 2. ELECTRICITY GENERATION:

Solar radiation may be converted directly into electricity by solar cells - photovoltaic cells. In such cells, a small electric voltage is generated when light strikes the junction between a metal and a semiconductor - silicon or the junction between two different semiconductors. The power generated by a single photovoltaic cell is typically only about two watts. By connecting large numbers of individual cells together, however, as in solar-panel arrays, hundreds or even thousands of kilowatts of electric power can be generated in a solar electric plant or in a large household array. The energy efficiency of most present-day photovoltaic cells is only about 15 to 20 percent, and, since the intensity of solar radiation is low to begin with, large and costly assemblies of such cells are required to produce even moderate amounts of power.

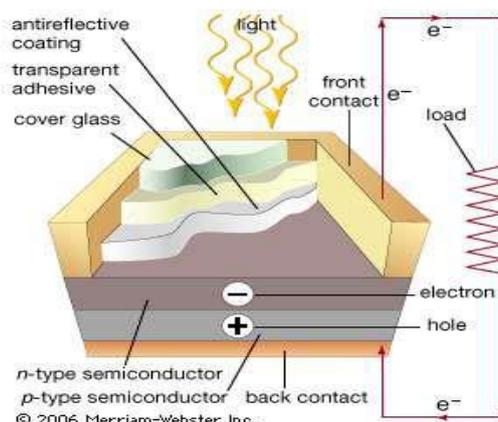


Fig.3 Electricity generation in a Photovoltaic cell

Small photovoltaic cells that operate on sunlight or artificial light have found major use in low-power applications—as power sources for calculators and watches, for example. Larger units have been used to provide power for water pumps and communications systems in remote areas and for weather and communications satellites. Classic crystalline silicon panels and emerging technologies using thin-film solar cells, including building-integrated photovoltaic, can be installed by homeowners and businesses on their rooftops to replace or augment the conventional electric supply. Concentrated solar power plants employ concentrating, or focusing, collectors to concentrate sunlight received from a wide area onto a small blackened receiver, thereby considerably increasing the light's intensity in order to produce high temperatures. The arrays of carefully aligned mirrors or lenses can focus enough sunlight to heat a target to temperatures of 2,000 °C (3,600 °F) or more. This heat can then be used to operate a boiler, which in turn generates steam for a steam turbine electric generator power plant. For producing steam directly, the movable mirrors can be arranged so as to concentrate large amounts of solar radiation upon blackened pipes through which water is circulated and thereby heated.

## 3. SOLAR ENERGY – CHALLENGES:

The energy that sun provides to the earth for one hour could meet the global energy needs for one year! As we know, the sun is a powerful energy source, and even though we are not able but to collect a fraction of this energy, yet utilizing this power by installing solar panels can make a significant difference to the planet earth.

While it has been widely criticized for being expensive or inefficient, solar energy has now proved to be extremely beneficial - not only for the environment but also for the private economies around the world.

Thanks to the available solar panel grants, as well as, the increasingly competitive prices in the market, solar energy has become the main source of energy for more and more countries. The technology has been drastically improved in last years and has been complemented by solar battery storage systems, turning solar into a significantly more efficient source of clean energy.

Following is a summary of the key advantages and disadvantages of solar power at a glance.

#### **Advantages of Solar Energy**

- Renewable Energy Source
- Reduces Electricity Bills
- Diverse Applications
- Low Maintenance Costs
- Technology Development

#### **Disadvantages of Solar Energy**

- Weather Dependent
- Solar Energy Storage is Expensive
- Uses a Lot of Space
- Associated with Pollution
- Cost

1. Weather-Dependent - Although solar energy can still be collected during cloudy and rainy days, the efficiency of the solar system drops. Solar panels are dependent on sunlight to effectively gather solar energy. Therefore, a few cloudy, rainy days can have a noticeable effect on the energy system. You should also take into account that solar energy cannot be collected during the night. On the other hand, if you also require your water heating solution to work at night or during wintertime, thermodynamic panels are an alternative to consider.

2. Cost - The initial cost of purchasing a solar system is fairly high. This includes paying for solar panels, inverter, batteries, wiring, and the installation. Nevertheless, solar technologies are constantly developing, so it is safe to assume that prices will go down in the future.

3. Solar Energy Storage Is Expensive - Solar energy has to be used right away, or it can be stored in large batteries. These batteries, used in off-the-grid solar systems, can be charged during the day so that the energy is used at night. This is a good solution for using solar energy all day long but it is also quite expensive. In most cases, it is smarter to just use solar energy during the day and take energy from the grid during the night (you can only do this if your system is connected to the grid). Luckily your energy demand is usually higher during the day so you can meet most of it with solar energy.

4. Uses a Lot of Space - The more electricity you want to produce, the more solar panels you will need, as you want to collect as much sunlight as possible. Solar PV panels require a lot of space and some roofs are not big enough to fit the number of solar panels that you would like to have. An alternative is to install some of the panels in your yard but they need to have access to sunlight. If you don't have the space for all the panels that you wanted, you can opt for installing fewer to still satisfy some of your energy needs.

5. Associated with Pollution -Although pollution related to solar energy systems is far less compared to other sources of energy, solar energy can be associated with pollution. Transportation and installation of solar systems have been associated with the emission of greenhouse gases. There are also some toxic materials and hazardous products used during the manufacturing process of solar photovoltaic systems, which can indirectly affect the environment. Nevertheless, solar energy pollutes far less than other alternative energy sources

#### **4. INTERNET OF THINGS -THE SOLUTION:**

The Internet of things (IoT), describes the network of physical objects—"things"—that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the Internet. Internet of things makes use of many technologies, including real-time analytics, machine learning, commodity sensors, embedded systems- traditional fields of embedded systems, wireless sensor networks, control systems, automation (including home and building automation), and others all contribute to enabling the Internet of things. In the consumer market, IoT technology is most synonymous with products pertaining to the concept of the "smart home", including devices and appliances (such as lighting fixtures, thermostats, home security systems and cameras, and other home appliances) that support one or more common ecosystems, and can be controlled via devices associated with that ecosystem, such as smartphones and smart speakers.

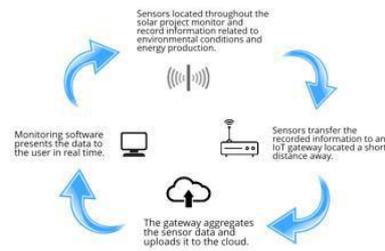


Fig.4 IoT system mechanism in a solar power plant

**5. IOT APPLICATIONS:**

There are extensive set of applications of IoT device which can be further divided into consumer, commercial, industrial, and infrastructure spaces. One of the dependencies of solar power generation system is that, the energy generated by it depends on the weather and climatic conditions. Specially the availability of sun light and its intensity. Another important criteria is selection of site for solar power plant, similarly the space for solar panels is equally important. The IoT based system can be used here for analysis and monitoring the amount/volume and intensity of sunlight and also to monitor the solar power generation system performance and efficiency. We need to use specific sensors which can sense all the parameters of the environment which plays important role in power generation directly or indirectly.

**6. IOT SYSTEM ARCHITECTURE:**

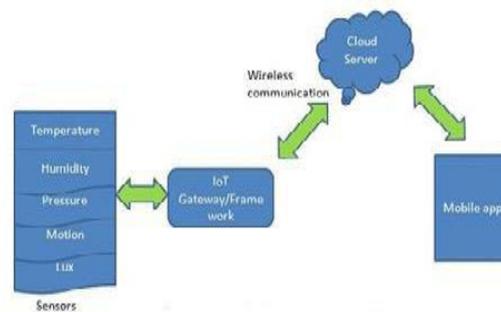
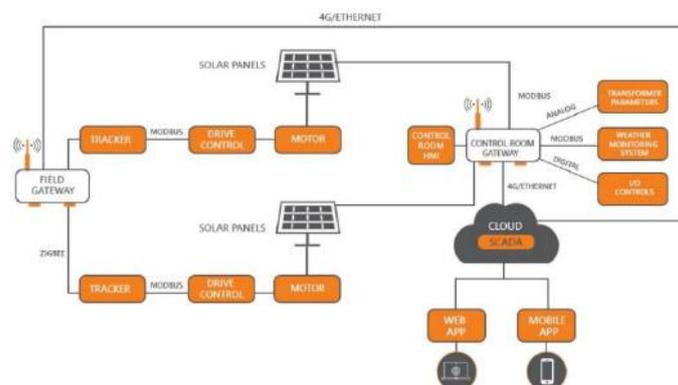


Fig.5 IoT Architecture

**Data storage**

In IoT applications one of the challenges is to clean, process and interpret the vast amount of data which is gathered by various sensors. There is a solution proposed for the analytics of the information referred to as Wireless Sensor Networks: These networks share data among sensor nodes that are sent to a distributed system for the analytics of the sensory data.



**Sensors**

**1. Temperature Sensors**

Temperature sensors measure the amount of heat energy in a source, allowing them to detect temperature changes and convert these changes to data. Machinery used in manufacturing often requires environmental and device temperatures to be at specific levels. Similarly, within agriculture, soil temperature is a key factor for crop

growth. In a solar power generation system, these temperature sensors can be used for measuring surrounding temperature.



## 2. Humidity Sensors

These types of sensors measure the amount of water vapour in the atmosphere of air or other gases. Humidity sensors are commonly found in heating, vents and air conditioning (HVAC) systems in both industrial and residential domains. They can be found in many other areas including hospitals, and meteorology stations to report and predict weather. In a site selection for installing solar panels it is important to know humidity around. Which helps in understanding efficiency of the solar power plant?



## 3. Pressure Sensors

A pressure sensor senses changes in gases and liquids. When the pressure changes, the sensor detect these changes, and communicate them to connected systems. Common use cases include leak testing which can be a result of decay. Pressure sensors are also useful in the manufacturing of water systems as it is easy to detect fluctuations or drops in pressure. They can also play a vital role in solar heaters.



## 4. Proximity Sensors

Proximity sensors are used for non-contact detection of objects near the sensor. These types of sensors often emit electromagnetic fields or beams of radiation such as infrared. Proximity sensors have some interesting use cases. In a moving solar panel system these proximity sensors can play an important role, by denoting a particular panel direction at a particular time has maximum or minimum power generation from the sun.



## 6. Accelerometers

Accelerometers detect an object's acceleration i.e. the rate of change of the object's velocity with respect to time. Accelerometers can also detect changes to gravity. Use cases for accelerometers include smart pedometers and monitoring driving fleets. They can also be used as anti-theft protection alerting the system if an object that should be stationary is moved. In a solar power generation system where suppose the solar panel can move in direction with the sun movement that change in movement with respect to electricity can be monitored with the help of these accelerometers.



## 7. Gyroscope

Gyroscope sensors measure the angular rate or velocity, often defined as a measurement of speed and rotation around an axis. Use cases include automotive, such as car navigation and electronic stability control (anti-skid) systems. Additional use cases include motion sensing for video games, and camera-shake detection systems. It can also be used to note the angular movement of solar panels with respect to the sun movement.



## 9. Infrared Sensors

These types of sensors sense characteristics in their surroundings by either emitting or detecting infrared radiation. They can also measure the heat emitted by objects. Infrared sensors are used in a variety of different IoT. They can be used to read and interpret radiations of solar panels with respect to different hours of the day and also in various sessions.



## 10. Optical Sensors

Optical sensors convert rays of light into electrical signals. There are many applications and use cases for optical sensors. Directly they can interpret sun light intensity and can be used as cross verification for efficiency of the solar system.



## 11. MYTHINGS IOT SENSOR:

The MYTHINGS Smart Sensor is a self-contained, battery-powered multi-purpose IoT sensor that allows you to capture critical data points like acceleration, temperature, humidity, pressure and GPS. The smart sensor is integrated with the MYTHINGS Library – a hardware independent, small-footprint and power-optimized library of code, featuring the MIOTY (TS-UNB) low-power wide area network protocol. It is a complete analysis sensor in itself.

## 7. CONCLUSION:

Now it is a fact that we have to switch to alternate energy sources, especially renewable energy sources because of the scarcity of conventional energy sources. Surely, it will take some more time to become renewable energy sources more efficient. In last few years, we have started using solar energy systems, which are reliable and efficient up to some extent. By implementing IoT system in renewable energy systems, it will be much easier to monitor and analyse the climatic parameters, which directly and indirectly affect the performance. IOT systems can play an important role in site selection and for the prediction purpose. IoT is the future of modern digital applications where we can monitor, control, analyse and interpret data from these systems.

## REFERENCES:

1. <https://www.nrdc.org/stories/renewable-energy-clean-facts>
2. <https://www.journals.elsevier.com/renewable-energy>
3. <https://www.irena.org/solar>
4. <https://www.acciona.com/renewable-energy/solar-energy/>
5. [https://www.fortinet.com/resources/cyberglossary/iot?utm\\_source=paid-search&utm\\_medium](https://www.fortinet.com/resources/cyberglossary/iot?utm_source=paid-search&utm_medium)
6. [https://www.cigionline.org/articles/emerging-internet-things?utm\\_source=google\\_ads&utm\\_medium](https://www.cigionline.org/articles/emerging-internet-things?utm_source=google_ads&utm_medium)
7. <https://www.ibm.com/blogs/internet-of-things/what-is-the-iot/>
8. <https://www.irjet.net/archives/V6/i4/IRJET-V6I4403.pdf>

## APPLICATION OF RFID TECHNOLOGY IN LIBRARIES

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### ABSTRACT:

*Radio frequency Identification (RFID) is the very important and advanced technology of the 21<sup>st</sup> century. Now it becomes one of the most controversial technologies in present ICT era. Libraries began using RFID system to replace their barcode system in the late 1990s. RFID help to secure library materials mobiliz the circulation process and enhance the user service and reduce theft case. In the age of information communication technology and due to introducing new technology day by day the world has shrunk in to a small frame as it ware in this article emphasized the role of RFID in different types of functions of the library as check-in check-out, security checking, shelf management, how RFID system works and also discuss the major advantages and limitation of RFID systems in Library.*

**Keywords:-** Radio Frequency Identification, RFID components, needs, implementation, advantages, and limitations.

### 1. INTRODUCTION:

RFID is a wireless technology in which object having RFID Tags attached to them can be identified using scanners to read the data from the tags. RFID is high speed and reliable system which is different from the barcode and Q.R. code. RFID is an IT Tool designed to meet the need of data collection. This system can directly improved inventory management by decreasing inventory levels and reducing, holding cost there by resulting in increased profitability. RFID is one of the most technologies being adopted by both industry and academic world. Modern academic library is a place where millions of books advanced, periodicals, CD's, DVD's and other reading materials are contained. RFID system using RFID tags Library is simple and convenient. RFID system consists of book's each attached with an RFID tag, RFID Reader, Computer network and software. Library staff handle lending, returning, sorting, tagging etc. of books, using RFID tags in this Library system. A person can locate RFID tag, using the RFID Reader which Identifies and locates the book when the book is carried on the counter the Library Staff can either activate or deactivate the electronic article surveillance bit in the books tag. If a book is borrowed, then surveillance bit is deactivated.

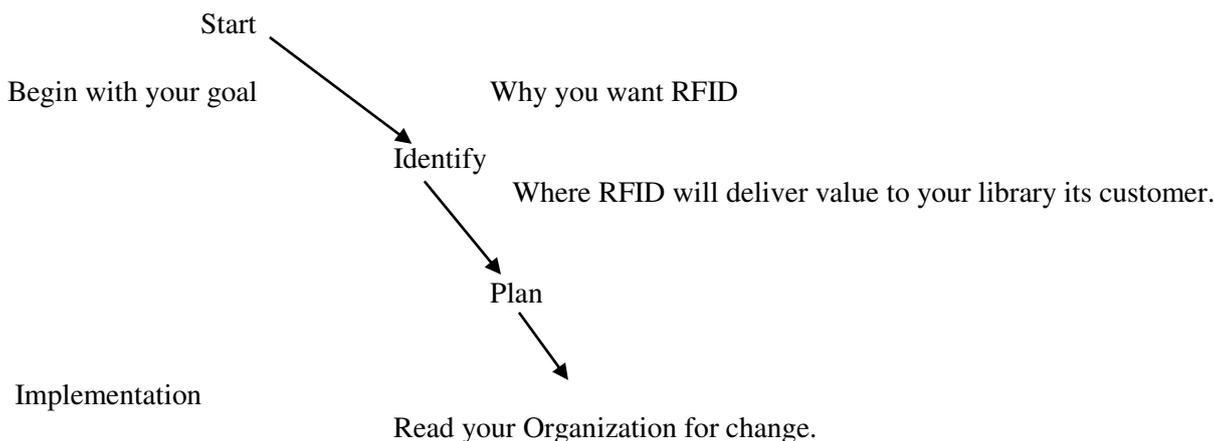
### 2. RFID BACKGROUND:

- British first pioneered the RFID technology during the world war II nd. for their aircraft Identification.
- Late 1960 – United state government began using RFID to tag and monitor nuclear and other hazardous material.
- The first U.S. Patent for an active RFID with rewritable memory was obtained by Mario-E-Cardullo and on January 23<sup>rd</sup> 1973.
- RFID in India saw its beginning in the 1940's for defense application first time it was used for commercial purpose in 1980 for cattle tracking applications.
- The First Library RFID Suppliers started to market their system in mid 1990's.
- Today RFID is used for automotive tool collection, access control, security, tracking, objects and human in shop, Libraries, hospital etc.

### 2. Need of RFID:

RFID needs for faster check in/out/renewal, Library security, faster inventory, tracking the misplaced document, limitations of bar code technology & EM and saving in time & staff, Streamlined transactions can be used to identify, track, sort or detect Library holding.

## Implementations:-



## 3. RFID COMPONENTS:

- **RFID Tag (or Transponder):**

These are paper thin smart labels which are electronically programmed consisting of an integrated circuits and antenna coil, that communicates with a reader by means of a reader frequency signal many types of RFID Tags are available, viz-active, Passive, HF/UHF/Hybrid etc.

- **RFID Reader (or Interrogator):**

RFID Reader consist of a transmitter, receiver antenna and a decoder. It communicates with RFID Tags identify them and receive data stored in the tag.

## Applications software/middleware/RFID Server Layer:

- Used for Integration with RFID devices and the LMS.
- Provide reader connectivity to other system on the network.
- Translate data and transmit to its other applications.
- It is used for the reader to transmit or receive data from a tag, software integrates the reader hardware with the existing library automations software for seamless functioning of circulation section.

- **Detection system/gate sensor:**

Exit gate have antennas in them, these antennas produce radio signals to activate the tag and read the data stored in it. Antennas are the channels between the tag and the RFID reader which control the system's data acquisitions and communications. The electromagnetic field produced by an antenna can be constantly present when multiple tags are expected continually. Antennas can be built in to doorframe to receive tag data from patron's items passing through the doors.

- **Server/Docking Station:**

1. It is on which the software that interfaces with the integrated Library automation software is loaded.
2. The server is the heart of comprehensive RFID system. It is the communication gateway amongst the various components.
3. It receives the information from are or more the readers and exchange information with circulation database.
4. Its software includes API (Application Programming Interfaces) necessary to interface it with the automated Library system. The server typically includes a transaction database so that reports can be produced functioning of circulation section.

## People counter:

1. RFID system may also have a facility to record the movement of incoming/outgoing members of the Library with their details.
2. If a Library member passing through the EAS pedestals with smart card, its movement is recorded with details which helps in maintaining the statistics and there details for various use.

#### 4. RFID STANDARD FOR LIBRARIES:

- Important ISO standard pertinent to library RFID System: ISO/IEC 15693, ISO/IEC18000-3, ISO 28560, ISO14443A.
- These standards work on 13.56 MHz frequency.
- The tags and the equipments used may carry the FCC & EN-ETSI Certifications.
- They may follow the NCIP V2.2 or STP2 protocol
- Voltage: 230 Volt.
- Data interface: RS-232.

#### 5. LIBRARY RFID DIAGRAM:



#### How does Library RFID System works?

- The RFID Reader sends out electromagnetic waves in the RF (Radio Frequency) spectrum.
- When the tag enters the RF field, the tag's electronic circuits are powered by energy from the RF field.
- The tag then modulates the waves and sends them back to the reader.
- The reader converts the signals received from the tag into digital data and sends it to the host computer.

#### 6. MAJOR ADVANTAGES:

- Hassle free issue/return/renewal.
- Increase the security function in Library.
- Flexible library timings by use of self-checking and book drop kiosks.
- Quick inventorying, shelf reading, re-shelving, sorting, searching, weeding and exception finding.
- Enhanced customer services and improved process efficiency.
- Highly reliable, claims an almost 99.9% detection rate.
- RFID tags last longer than barcodes.
- EAS exit gates have an option to keep record of incoming and outgoing Library users.
- Fingerprint or picture may also be integrated with RFID.

#### 7. LIMITATION:

- High cost.
- Technology still developing. Interoperability and Standardization issues.
- Integration problem of RFID solution with the software/ hardware.
- RFID system may be compromised with certain devices/conditions.
- Moisture, metal, mist, distance, and incorrect positioning of antennas may affect functioning.
- Physical damages to the tags/removal by the Library user.
- Documents like magazine, pamphlets, CD's, DVD, may not have good location for bulk RFID tags and tag cost is also significant in their case.
- Transition phase may lead to chaos.
- Privacy and ethical issues.
- Vendor support and technology compatibility issue.
- Annual maintenance charges of post warranty period are very high.

- Training/ adoption by the staff and users.

## 8. CONCLUSION:

In the age of Emerging technologies Libraries are facing changes due to impact of ICT, changing Patron needs, changing information Environment. RFID Technology is taking off in libraries at an increasingly rapid pace. It has capability of making our lives in the Library more convenient. It is necessary to small Library and new Library to adopt RFID technology at an early stage. Currently, RFID technology adopting figure is rapidly increasing as Libraries understand the benefits and convenience of incorporating RFID in to their system. The RFID technology in the future of Library but we should also remember that it is supporting technology and not a competing one.

## REFERENCES:

1. Keet-fung franki Ng, Sweta Patel, Amid D.Zard: Patents Tracking in Emergency Department Using RFID: An Interactive Qualifying Report. P.15.
2. Joadan Gopal Singh and others (2008): Use of RFID Technology Trends in management and Library System: Issues & challenges, Delhi; Wisdom Publications.
3. Venkatchlam. A.M. and others (2009): Use of RFID Technology in Libraries: A recent approach to circulation, Tracking, inventory, and security of Library Materials.
4. Anandan, C (2006), Digital Libraries: From Technology to culture, New Delhi, kaniska Publishers.
5. Amudhavalli, A and Singh Jasmer, (2005), Challenges and Changes in Librarianship, Vol-2, New Deli, B.R. Publishing Corporation. P.P.813-837.
6. Madhani, Pankaj, (Dec-09), Benefits of RFID in Retailing, Marketing Mastermind, ICFAI Journal PP-36-40.
7. Gorman, G.E.(2002), The Digital Factor in Library and information Services, London, Fact Publishing.
8. Boss Richard "RFID technology in Libraries" Library technology Reports, NOV-DEC 2003.
9. Das, Biswajit: Radio Frequency Identification (RFID): A Birds Eyeview, Kolkata: Jadavpur University.
10. <http://rfidjournal.com>

## TRENDS OF BIG DATA IN IOT, AI AND OTHER TECHNOLOGICAL ADVANCEMENTS BY THE END OF CURRENT DECADE-2020”

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### ABSTRACT:

There is huge development in Big data nowadays, leading people gradually to understand the big value and various utilities hidden behind data. Therefore, it is vital to make a deep and detailed knowledge of massive data field. In this paper, we mainly collect data from different sources, cite the conclusions and discoveries from other scholars in order to get more accurate answers and predictions. Meanwhile, we analyze some fields which will be closely related to big data and should obviously influence it, like cloud computing and AI, and hope to seek out the inner connection between their development and big data development. In addition, we analyze the history and current situation of massive data, and make reasonable predictions towards the event of its future. Based on data, thesis from other scholars and conclusions from reports, we speculate our prediction towards the longer term of massive data, and it can strongly support the judgment of big data development tendency.

**Key Words:** Big Data, Cloud Computing, Internet of Things (IOT), Artificial Intelligence (AI), Biology.

### 1. INTRODUCTION:

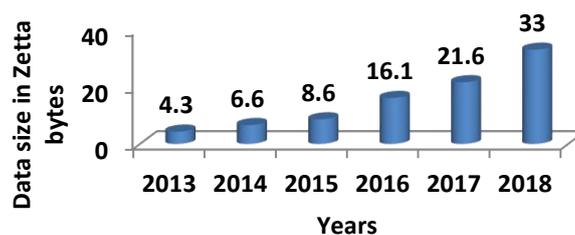
Currently, the term “big data” is striking more and more fields. Even though it did not appear in front of public sight until past several years, this concept has been raised as early as 1990s. We can describe big data as a complicated technology to process or analyze data which are overlarge and sophisticated for traditional methods. As per our research the key characteristics of big data are “Volume, Velocity and Variety”, which are known as 3 “Vs”, respectively refer to the magnitude, the rate, and the heterogeneity of the data. This concept has even been broadened to 5“Vs”, referred to as “Variability and Value”. [1] At present, these “Vs” are still increasing rapidly. Because of the great utility and potential of big data, and with the explosive growth of data, it also has wide applications in different fields and subjects since it jumped into public sight in 2011. Nowadays, big data plays a big role during a number of sub-domains, including AI, cloud computing, medical and biology, data processing, management, etc., and these domains promote the further development of big data technologies and applications in turn. Also, more and more countries, especially strong and advanced countries, start to pay increasing attention and budget to this whole new world. [2]

In this paper, we will demonstrate and analyze the data we collected, illustrate the trend of big data development from an overall and some detailed perspectives, which are from representative fields that may accelerate the process of big data development. [3] Furthermore, according to data and analysis about the tendency above, we will also come up with some reasonable predictions for several subjects and industries influenced by the development of big data technologies and applications.

### 2. TREND ANALYSIS:

#### 2.1 Overall perspective

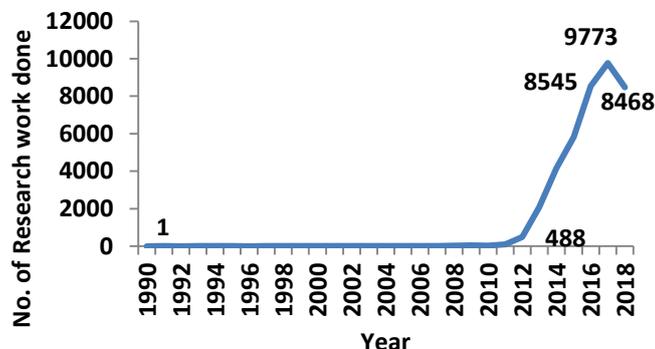
As mentioned in Introduction, the storage of massive data within the whole world is rapidly increasing. There are 2.5 quintillion bytes of knowledge created every day at our current pace, but that pace is merely accelerating with the expansion of the web of Things (IoT). Out of total data available, 90% [4] of the data in the world was generated in last two years.



(Source: IDC)[10]

Chart 2.1: Total size of data in Zetta bytes

As shown in figure, the sum of the world's data has grown from 4.3 zetta bytes in 2013 to 33 zetta bytes in 2018, and the compound average growth rate (CAGR) was 40% approximately. In this case, IDC predicts that the global data size will increase to 175 zetta bytes by 2025. This situation brings not only many new opportunities to citizenry, but more challenges also. In order to adapt this tendency, people must make more investigations and investments towards big data technologies, and exploit a market for its application. Next, we will analyze the tendency of big data technology from the perspectives of academy, talent demand, investment and market size respectively.[10]



(Source: IDC)[10]

Chart 2.2: Number of Research Done in the field of Big Data

The result shows that the sum of all research theses about big data between 1990 and 2011 is approximately 391, while the amount of thesis about same topic in just 2012 is 488. From chart above, it is easy to notice that the curve presents an exponential type from 2011 to 2018. Since the thesis may be a evidence to prove the eye and energy of students, it's clear that academy field keeps that specialize in big data, and therefore the relevant discoveries and achievements will only increase faster and faster. The demand of relevant occupations and skills also can imply the event status and prospect of massive data. Take the info scientist, one among the foremost representative professions associated with big data. According to the LinkedIn, 2017 emerging jobs report, the amount of machine learning engineers and data scientists has risen rapidly. The number of knowledge scientists working today has increased by 6.5 times as compared to 5 years ago. The amount of knowledge science and analytic jobs listing in 2015 is 2,350,000. According to IBM, the demand for data scientists is projected to a 39% growth. [10]Broadening demand of talents will attract more scholars and experts throwing themselves into the advancement of this technology. The potential advantage of big data also influences the target of investment. As biggest economic entities in the world, China, United States and other developed countries invest large amount of capital to encourage the development of big data.

Besides China, United States and other countries, the United States also keeps accelerating its pace on big data investment. On 29 March 2012, the Obama Administration announced a “Big Data Research and Development Initiative” and made a 2,000,000 dollars appropriation for “greatly improve the tools and techniques needed to access, organize, and glean discoveries from huge volumes of digital data”. In recent years, in the US early-stage and later-stage risk capital investment in big data has exceeded 4,000 million of dollars. It is found that almost 20 billion dollars are spent on big data by the United States from 2011 to 2016. These investments offer the fund guarantee for big data development, and the continuous and stable financial support gives the development of big data powerful stimulation and motivation. Plus, the dimensions of massive data market also emit a positive signal. [10]

According to recent statistics, The big data market revenue keeps raising, from 7.6 billion dollars in 2011 to 35 billion dollars in 2017, and “the global big data and business analytics market was valued at 169 billion U.S. dollars in 2018”; In China, the large data industry market size reached 32.70 billion yuan that comes to be approximately 481 million dollars in 2018 from only 8.4 billion yuan that comes to be approximately 1.235 billion dollars in 2014. The market is that the forefront of the technology and investment, and therefore the existence of an optimistic, healthy and positive market can attract more capitals and experts, and stimulate the technology successively in order that a virtuous circle is made. No matter which perspective, academy, demand of talents, investment or market, the tendency of massive data development is usually upward. More than the superficial phenomenon, there should be some critical reasons that motivate the abundance of massive data. We have found out several vital turning points, and one of them is the massive increase of data amount. Up to 2010, there have been just one ZB of knowledge within the world; but at the top of 2011, the quantity raise to 1.8 ZB, and therefore the raise of knowledge storage began to follow a graph. Besides the raise of knowledge amount, we speculate that the abundance of massive data is additionally led by the event of some fields below. Let us start our investigation from cloud computing, the world which has strong and compelling regard to big data.

## 2.2 Big data and Cloud computing

Cloud computing means “a computing model that relies on an out sized, centralized data centre to store and process an impressive wealth of information”. Big data and Cloud computing complement each other, since Cloud computing is “such area that's beginning to significantly impact how big data is managed, deployed and used”. Cloud computing are going to be an optimized solution for enterprises to store, manage, and process their massive and sophisticated data within the future. It will offer an enormous convenience for giant data and its applications. According to IDC, 49% of stored data in this world will reside in public cloud up to 2025. Google Scholar attests that the quantity of thesis, patents and citations about big data has a clear raise between 2011 and 2012, and therefore the amount of thesis and patents about big data and cloud computing also has a remarkable increase during the same period. According to one statistic, the scale of global Cloud computing market reached 260.1 billion dollars, and this number raise to 307.7 billion dollars, with 18% rate of increase. Besides, Statista claims that the worldwide public Cloud revenue reached 154 billion dollars in 2017, and can grow to 313 billion dollars by the top of 2020. A data record from Daze info is that the CAGR was 35.8% from 2008 to 2014, and kept 22.8% from 2014 to 2018. Since as what mentioned earlier in this article, big data and Cloud computing complement each other, so the prosperity of Cloud computing is a crucial element that contribute to the thriving trend of big data development. [10]

## 2.3 Big data and artificial intelligence

The development of AI (AI) is one among the best and most representative milestones of recent years, helping our civilization flourish in its unique way. Under situations of accelerating volumes, velocities and sort of data, it's reasonable for us to reckon that AI may facilitate the event of massive Data thanks to its remarkable performance in cleaning, categorizing and structuring the information. After pre-processing by AI, mining the information from these data will become much more efficient, and big data releases lots of opportunities for AI development and applications in return. For instance, with the rapid increment of the implementation of electronic health records (EHR), developing AI can make an excellent difference while mining the knowledge from massive complex data of patient which will contribute to scale back the danger for diagnostic and therapeutic errors. We also notice that the proportion of paper and patents related to AI in big data domain is increasing gradually. This proportion is 29.9% in 2018, nearly accounting for one third of the total. It was found that the growth rate of academic enthusiasm in AI is far greater than the one in big data before 2007. After 2007, the situation reversed gradually. We assume that during the period before 2007, some vital theories and algorithms, like Bayesian networks and multi-agent systems, led to the sharp development of AI. However, after data explosion in 2011, big data heats up, pushing AI moving forward. Due to the direct correlation between these two technologies, the prosperity of AI also will stimulate big data. The global AI market size “was valued at USD 641.9 million in 2016 on the thought of its direct revenue sources. Growing at a CAGR of 57.2% since 2017, the AI market will reach 35,870.0 million USD by 2025 by its direct revenue sources”. The advancement in commercial sector is driving AI industry growing rapidly, which will also lead to the improvements of big data technology. [5]

## 2.4 Big Data and Others

Apparently, there are other fields and technologies which will influence the trend of massive data development. A relatively representative field is biology. Different from the tendency of Cloud computing or AI, the ratio of biology in big data is relative still compared with them. However, since the whole amount of massive data thesis and patents is growing, the quantity of massive data biology thesis and patents is additionally growing; moreover, if we search its year-on-year growth, we will find that the curve of biology also follows the curve of massive data. These years, the data set of biology is also increasing rapidly, and a mass of information and knowledge in biological and medical data bases such as “The Protein Bank” (PDB) marks that the intersection of massive data and biology would seem necessarily. Besides the academics utilities, big data can also give a hand to medical applications like public health. As stated in “Big Data for Health”, “It is predicted that recent advances in big data will expand our knowledge for testing new hypotheses about disease management from diagnosis to prevent onto personalized treatment”. Last but not least, the demand of knowledge management, analysis and prediction from science, finance, government management, etc. will also generate positive influence towards the trend of massive data development. [6]

## 3. ANALYSIS AND INTERPRETATIONS:

According to the analysis we made above, we assert that big data shows an image of prosperity under the background of exponential growth of worldwide data storage. The academicians keep that specialization in big data, with the technologies and theories being innovated constantly. The demand of related talents and jobs is additionally enlarging, as Louis Columbus pointed out: “The fastest-growing roles are data scientists and advanced analysts, which are projected to ascertain demand spike by 28% by 2020”. The size of market keeps expanding, attracting a great deal

of investment and policy support. It is reasonable to assume that big data will maintain a steadily fast development tendency within the next few years, affecting all walks of life to varying degrees. [7]

We infer that cloud computing and AI will keep step to the progress of massive data during this information era thanks to their direct correlation. The global cloud computing market size will reach about 160 billion dollars in 2020 with CAGR of 29%. Gartner predicts that the entire worldwide public cloud service revenue will reach 331.2 billion dollars in 2022. [8] According to the forecast by Reuters, the CAGR of AI market size will keep 48%, and can reach 25 billion dollars in 2023. Besides, the prosperity of big data technology can also lead to the advancement in biology and medical field in the future, offering lots of unprecedented information and knowledge covering clinical imaging, genomics, and disease management etc. For government, big data can make regulators more sensitive and come up with more accurate decision when supervising public opinion, combating crime and managing cities. At the same time, the demand of some jobs directly relevant to big data, like data analyst, data scientist and data architect, will also expand in years to come. [9] However, the boom of massive data will strike or reshape some professions simultaneously. When it comes to managerial field, we used to make decisions by those experienced executives when data are scarce and expensive. Since big data can usually provide us with far more precise and objective analysis and advice, we tend to move from intuitive to data-based decision making. Following this trend, the size of executive teams is likely to diminish. The component members of these teams will change. In the governments and enterprises, people who do well in finding problems and analyzing statistic will finally remain. In addition, accounting industry also will be stricken strongly by the event of massive data. At present, accountants spend most of their time collecting and reconstructing data. Thanks to the outstanding performance of massive data technology in data pre-processing, work efficiency of accountants and risk assessors will increase drastically. In this case, there is no need for enterprises to keep so many accountants. [11]

#### 4. CONCLUSION:

Based on statistics and some other reports, we analyze and explain the trend of big data development from the perspective including academics achievements (volume, ratio and year-on-year growth), investment, market size, and related professions. During these processes, we discover that the growth of big data did not become drastically fast until 2011, and discuss possible elements (Cloud computing, AI, etc.) that may lead to the prosperity of massive data; By comparing the change of annual ratio and year-on-year growth of educational achievements, we infer that mentioned fields and massive data complement one another, and their improvement will exert positive influences on big data advancement. On the idea of the analysis above, we come up with a prediction for the longer term of massive data industry. On the positive side, we assume that the flourish of big data will stimulate and accelerate the progress of related industries, and create or expand the demand of some relevant occupations. On the negative side, big data will alter the operation mode of governments and enterprises, and switch their methods for decision making; furthermore, it will also strike some jobs like executives and accountants.

#### REFERENCES:

- [1]. Nasr Mona and Ouf Shima (2015) "Cloud Computing: The Future of Big Data Management", International Journal of Cloud Applications and Computing, Vol. 5, Issue 2, pp-53-61
- [2]. Haider Murtaza and Gandomi Amir (2015) "Beyond the hype: Big data concepts, methods, and analytics", International Journal of Information Management, Vol. 35, pp-137-144
- [3]. Bernard Marr (2018) "How Much Data Do We Create Every Day? The Mind-Blowing Stats Everyone Should Read", Forbes
- [4]. Martin Hilbert (2015) "Big Data for Development: A Review of Promises and Challenges. Development Policy Review", martinhilbert.net Retrieved 7 October 2015.
- [5]. Katie Costello (2019) "Gartner Forecasts Worldwide Public Cloud Revenue to Grow 17.5 Percent in 2019", Gartner.
- [6]. Shanhong Liu (2019) "Big Data Market Size Revenue Forecast worldwide from 2011 to 2027 (in billion U.S. dollars)", Statista.
- [7]. Sawant Abhishek (2019) "Artificial Intelligence (AI) Market Research Report - Forecast to 2023", Market Research Future.
- [8]. Steve Lohr (2016) "The Origins of 'Big Data': An Etymological Detective Story", The New York Times, Retrieved 28 September 2016.
- [9]. Gregory Piatetsky and K Dnuggets (2018) "How many data scientists are there and is there a shortage?"
- [10]. Alex Woodie (2018) "Global Data Sphere to Hit 175 Zetta bytes by 2025, IDC Says". Data Nami
- [11]. John R. Mashey (1998) "Big Data and the Next Wave of Infra Stress", Slides from invited talk Usenix Retrieved 28 September 2016.

## “IOT BASED PRECISION FARMING FOR JAWAR CROP IN MARATHWADA”

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### ABSTRACT:

India is an agricultural country. Even if it is an agricultural country, couldn't stand in top position in agricultural produce in terms of quality and quantity. Here are many factors like irrigation, fertilizers, seeds, soil maintenance, education, etc. That comes into picture that makes the country lose its identity in world market. Use of IOT in agriculture will help in maintaining soil by proper use of sensors. Data transfer between sensors and cloud based server shall be given to DSS so that proper amount of water, fertilizers and pesticides, etc. shall be dropped into the farm.

**Key words:** Internet of Things, Sorghum, Precision Agriculture, Sensors, Networking.

### 1. INTRODUCTION:

Farming in India is dependent on natural resources. It is found that farmers are selling their lands to the builders to earn less difficult money instead of farming. This has made it necessary to extend productivity from the shrinking farmlands ready to "> which can able to feed the billion plus people of India within the future. Precision agriculture will provide a solution to do it. Precision agriculture is nothing but an approach to farming that uses information technology to make sure that the crops and soil receive exactly what they have for optimum health and productivity. The goal is to ensure profitability, sustainability and protection of the environment IOT is the coming together of electronics engineering and computer sciences to solve traditional problems of farming. This is relying upon specialized equipment and software and IT services. This approach accesses real time data about the conditions of the water content in soil, environment temperature, along with other relevant information. The software uses the data to provide guidance to farmer about irrigation, harvesting times, soil management and crop market rate. However, agriculture may be a vast area it are often subdivided into many fields of experience. The system examines the role IOT can play in the irrigation process. It includes different types of sensors integrated with smart phone using IOT. Agriculture is going through an evolution. Technology has become an essential part of precision agriculture [1]. Precision agriculture is making the practice of agriculture more accurate and controlled. A crucial component of farm management is that the use of data technology. The fundamental aim of precision agriculture is to make sure profitability, sustainability and efficiency while protecting the environment. It provides benefit with reduced use of water, fertilizers, herbicides and pesticides, improve the quality, quantity and reduced cost of production besides the farm equipment's. Farmers haven't any longer to require uninformed decisions, then worry about unpredictable environmental changes. With Internet of Things, it is possible to receive highly accurate, real time information of agricultural processes like irrigation, planting of seeds, harvesting, and management of agricultural task without investing on man hour and so on. Farmers can also gather real time information on latest improvement in farming, the quality of soil, weather conditions, market rate of the crop and many more

Sorghum (Jawar) plants are very hardy and can withstand high temperature and drought however, it is grown in arid regions of Maharashtra, U.P, Rajasthan and humid regions of Bengal and Bihar. It may be successfully grown under atmospheric temperature ranging between 15 OC to 40 OC and annual rainfall starting from 400 to 1000 mm. Sorghum is grown on a spread of soil types but the clayey loam soil rich in humus is found to be the foremost ideal soil. It may tolerate mild acidity to mild salinity under pH 5.5 to 8.0. A good sorghum soil must have an efficient drainage facility. It may withstand water logging more than maize. Application of herbicides like atrazine @ 0.5 kg a.i./ha or Propazine @ 1.0 kg a.i./ha dissolved in 900-1000 liters of water, therefore, becomes obviously essential to control weeds. These herbicides should be applied before emergence of sorghum seedlings. Sorghum is an exhaustive crop and it depletes soil fertility in no time , if proper care isn't taken. The fertilizer doses differ from type to type and nature of crop to be grown e.g. local varieties need less quantity than hybrid ones. Similarly, irrigated crop requires higher doses than rain fed ones no matter whether it is a local or high yielding variety.

### 2. LITERATURE REVIEW:

To increase agricultural produce, predict disease, control use of water and crop monitoring, many IOT platforms are developed. Balamurugan et al [2] proposed an IOT application to regulate the evolution of temperature and soil moisture from sensor network deployed within the agricultural field using an IOT platform based on Raspberry Pi thus scavenging the analysis and monitoring the info received. Min-Sheng Liao et al [3] have developed an IOT application for monitoring environmental factors in orchid's greenhouse agricultural field.

The application is an integrated system, supporting image processing, allowing follow-up and analysis of leaf growth. Payero et al [4] proposed low cost application based on IOT for soil moisture monitoring. The system is a predication system on a sensor network and an IOT platform. This displays values of soil moisture. Precision agriculture (or smart farming) can significantly boost the agriculture production both in terms of productivity and sustainability [5]. Although productivity seems to be the driven force of each technological advance in agriculture, the importance of sustainability shouldn't be neglected. Sustainability emerges as a major issue throughout the spectrum of human activity [6], thus one of the goals of smart agriculture is the minimization of the environmental impact of the agriculture activities. The field that is considered as predecessor of smart farming is precision agriculture [7]. Data-driven technologies generally are quickly advancing with the event of the web of Things (IOT), and should become a crucial part of the longer term of farming [8]. Precision farming is being developed beyond the concept which bases the management practices on spatial measurements due to GPS. Precision farming incorporates AI services for applying and managing ICT and allows transverse integration throughout the whole agri-food chain with reference to food safety and traceability IOT is therefore a key technology in smart farming since it ensures data flow between sensors and other devices, making it possible to add value to the obtained data by automatic processing, analysis and access, and this leads to more timely and cost-effective production and management effort on farms [9].

### 3. CONCEPT:

There are three different modules of the concept

Module 1: Soil property identification (Wireless Sensor Network – WSN can work here)

- a. Using sensors
  - i. Humidity sensor for soil
  - ii. pH sensor for soil
  - iii. Chemical detection sensors for Phosphorous (P), Potassium (K), Nitrogen (N), Iron (Fe), Calcium (Ca), Chlorine (Cl), Zinc (Zn), etc.

Module 2: Crop condition details

- b. Using agricultural scientist (concept of “eSagu” implemented in AP & Telangana)
  - i. Required Water quantity
  - ii. Soil condition and its treatment
  - iii. Type of disease to the crop
  - iv. Dosage for curing disease or boosting the yield

Module 3: Automation part

- c. Sensors implementation
- d. Knowing crop condition using Drone Camera
- e. Automatic Chemical dosage formation to be sprayed
- f. Satellite communication for individual sector wise chemical deposition
- g. Overall system mounted on a remote controlled vehicle

Following steps are discussed below which will guide us to implement all modules discussed above.

Step 1: The crop is selected, with known soil type and all related data for the training data set to the proposed system.

Step 2: The field is divided into matrix with different sectors using real world coordinates of latitudes and longitudes. Here we can take help of Google Map to get the real world coordinates of the matrix field with equal size sectors.

Step 3: To get the problem in the field or related to the disease on the crop, we can use Drone Camera so that a video can be then converted into different photos of individual sector. These photos will help in decision making for chemical deposition depending on soil malnutrition or crop ailment.

Step 4: There are possibilities that not all the plants of crop are suffering with same deficiencies of chemicals but can vary depending upon quality and properties of soil in different sectors. So it is required to concentrate which chemical is needed in what amount for which sector to protect the soil getting overdosed or under dosed.

Even in case of some disease to crop there can be no problem to many sectors. So the chemical spray for disease can be as per requirement.

#### 4. METHODS AND PROCEDURE:

Once the field is converted into matrix and marked with coordinates it will be send to server so that the data on the server can be stored with reference to each sector. Now on cleaning the soil and ploughing we can place different sensors in the ground so as to know the condition of the soil. If some deficiency at some sector is detected, it will be marked and a database shall be maintained on server. Then the seeding process takes place and irrigation shall help the plants to grow. After some fixed time, the photographs of the plants will give us two types of data. Firstly it will be used to know the health of plant in terms of nutrition and secondly it will guide us if any disease or insect attack is visible on the plants. The data shall be made available to the server so that it will use decision support system (DSS) and it will decide the amount of chemical to be dispensed at each particular sector individually.

A chemical mixer machine mounted on a remote controlled vehicle shall be designed so that when all the data of the field has been generated by the DSS, it will be used to mix the decided quantity of chemicals and deposit in that particular sector. The vehicle will be guided by using satellite communication and coordinate system of the matrix. The vehicle shall move automatically in the field without any driver remotely using satellite communication.

#### 5. ADVANTAGES:

- Protection of Crop and Soil from over dose and under dose of chemicals.
- Cost effective solution as waste of chemical is managed.
- No extra knowledge is required and a lay man can use the system.
- IOT and Fully automatic concept.

#### 6. LIMITATIONS:

- In case of an satellite link breakdown, there would not be any client server communication which will result in failure of sending the sensor data to the server as well as inability to communicate the decision taken by the server to the client, thus hampering the functionality of the system.
- Strong solar radiation, high temperatures, high humidity, strong vibrations and other hazards can easily damage or destroy sensors or end devices.
- Due to malfunctioning of the sensors, like reading faulty values or not reading the values at all, erroneous messages will be sent to the server which will result in taking wrong decisions by the server and can affect the crop growth
- In case of unavailability of proper and robust hardware components, the system's efficiency can be affected to a large scale as the replacement of a high quality component with a low quality component may not provide the same accuracy or efficiency as the former one
- Extension of the system with other types of renewable energy sources and hybrid energy grid to unsure grid independence and sustainability of the system and setting the conditions for the use of the system in remote rural regions.
- The problems of security and privacy are thought as crucial challenges in applications of protected agriculture due to real-world examples of losses due to vulnerabilities, network attacks or privacy issues.

#### 7. CONCLUSION:

The paper discusses precision farming. It throws light on design of the system and its implementation. The details of problems associated with crop cultivation of Sorghum are discussed with probable manual solutions. The importance of IoT and data analysis has been presented for effective and efficient farming practices. The WSN nodes and their connection with the internet is designed and presented. The effective use of available systems in control system is also presented. This paper suggests the use of cloud-based services especially for database of the data from different sensors and actuator nodes. On software side, this paper proposes the implementation of time series-based database and as control and visualization software, node-red based application. This paper identifies the importance of data and its analysis for optimal operation of the farming, the importance of customer and farmer relationship to eliminate middle man and maximize the profitability for farmers. The government should facilitate farmers by developing basic infrastructure of internet, availability of governmental plan and policy regarding agriculture. The main limitation is cost and system knowledge.

#### REFERENCES:

- [1]. Shruti Varangaonkar and Shashikant Hippargi (2017) "IOT based Precision Agriculture", International Journal of Innovative Research in Science, Engineering and Technology, Vol. 6, Issue 9, pp-18468-18471.

- [2]. C.R. Balamurugan, R. Satheesh and Fronteiras (2017) “Development of Raspberry pi and IOT Based Monitoring and Controlling Devices for Agriculture”, *Journal of Social, Technological and Environmental Science*, Vol. 6, Issue 2, pp- 207-215.
- [3]. Min-Sheng Liao, Shih-Fang Chen, Cheng-Ying Chou, Hsun-Yi Chen, Shih-Hao Yeh, Yu-Chi Chang and Joe-Air Jiang (2017) “On precisely relating the growth of Phalaenopsis leaves to greenhouse environmental factors by using an IOT-based monitoring system”, *Computers and Electronics in Agriculture* pp-125-139.
- [4]. Payero, J.O., Mirzakhani-Nafchi, A., Khalilian, A., Qiao, X. and Davis, R. (2017) “Development of a Low-Cost Internet-of-Things (IOT) System for Monitoring Soil Water Potential Using Watermark 200SS Sensors”, *Advances in Internet of Things*, Vol.7, Issue 3, pp-71-86.
- [5]. L. Lipper, P. Thornton, B. M. Campbell, T. Baedeker, A. Braimoh, M. Bwalya, P. Caron, A. Cattaneo, D. Garrity, K. Henry, R. Hottle, L. Jackson, A. Jarvis, F. Kos-sam, W. Mann, N. McCarthy, A. Meybeck, H. Neufeldt, T. Remington, P. T. Sen, R. Sessa, R. Shula, A. Tibu, E. F. Torquebiau (2014) “Climate-smart agriculture for food security”, *National Climatic Change*, Vol. 4, Issue 12, pp-1068–1072.
- [6]. D. Tilman, K. G. Cassman, P. A. Matson, R. Naylor, S. Polasky (2002) “Agricultural sustainability and intensive production practices”, *Nature*, Vol. 418, Issue 6898, pp-671–677.
- [7]. H. Jawad, R. Nordin, S. Gharghan, A. Jawad, M. Ismail, H. M. Jawad, R. Nordin, S. K. Gharghan, A. M. Jawad, M. Ismail (2017) “Energy-Efficient wireless sensor networks for precision agriculture: a review”, *Sensors*, Vol. 17, Issue 8, pp-1781.
- [8]. Brewster C., Roussaki I., Kalatzis N., Doolin K., and Ellis, K. (2017) “IOT in agriculture: Designing a Europe-wide large-scale pilot”, *IEEE Communications Magazine*, Vol. 55, Issue 9, pp-26-33.
- [9]. Sundmaeker H., Verdouw C., Wolfert S., & Perez Freire L. (2016) “Internet of food and farm 2020”, In O. Vermesan & P. Friess (Eds.), *Digitizing the industry Internet of Things connecting the physical, digital and virtual worlds*, Gistrup, Denmark: River Publishers, Vol. 49, pp-1689-1699.
- [10]. Karim Foughali, Karim Fathallah and Ali Frihida (2018) “Using Cloud IOT for disease prevention in precision agriculture”, Published by Elsevier B.V. in *ScienceDirect Procedia Computer Science for The 9th International Conference on Ambient Systems, Networks and Technologies (ANT 2018)*, Vol. 130, pp-575–582.

## “A MINI REVIEW ON BIOLOGICAL ACTIVITY OF NITROGEN CONTAINING PHARMACOPHORE”

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### ABSTRACT:

*Heterocyclic chemistry is very important fundamental branch of organic chemistry which deals with synthesis, properties, and applications of various important heterocyclic compounds and dyes it has recently increased due to their deep shades, high strength, excellent brightness compared to others, synthesis of novel nitrogen containing heterocyclic compounds are challenging moieties. The number of unique N-heterocyclic moieties with significant physiological properties and applications in medicinal chemistry are evergreen. In this review, we insist the recent advances on new nitrogen-containing heterocyclic compounds and their distinct biological activities*

**Keywords:** Nitrogen, Biological Activities, methods of synthesis.

### 1. INTRODUCTION:

Heterocyclic chemistry is very important and unique branch among the applied branches of organic chemistry. The name heterocyclic means in Greek word “heteros” as “different.” The Heterocyclic compounds are generally cyclic organic compounds which contain at least one heteroatom, like Nitrogen, oxygen and sulphur and other atoms which are important in many biological processes. The Nitrogen containing ring is the unique heterocyclic in nature which having the great structural diversity of biologically and chemically active compounds, it is an important structural component in many medicinal and clinical research. With a significant amount of research dedicated to the development of new molecules. These molecules have received increasing attention over the past two decades.

Heterocyclic chemistry is very important fundamental branch of organic chemistry which deals with synthesis, properties, and applications of various chemical compounds. The Nitrogen containing heterocycle is the unique heterocyclic in nature which having the great structural diversity of biologically and clinically active compounds, it become an important component. in general many medicinal and clinical research have More than 90% of new drugs contain heterocyclic compounds and the interface between chemistry and biology, so that much new scientific research approaches to discovery and application is taking place is across the heterocyclic compounds. Recently there are a lot of heterocyclic compounds are already known, day by day percentage of number of heterocyclic compounds are increasing rapidly due to the increasing synthetic research in this field

**1.1 Four member ring heterocyclic compounds:** Azetidine is one of four-member rings containing heterocyclic compound which contain one nitrogen atom, this is prepared by nucleophilic displacement chemical reactions which is similar to those used to synthesis the corresponding three-member rings. The ring-opening reactions of four-member heterocyclic required qualitatively those of the corresponding three-member rings, but they occur rather less readily.

The very important heterocycles which have four-membered rings are two related series of antibiotics, the penicillins and the cephalosporins. These series contain the azetidinone ring which ring contain its name to the  $\beta$ -lactam antibiotics, the class to which belong the penicillins and cephalosporins. The chemistry of azetidinones was explored regularly during the intensive research into penicillin Nitrogen containing four member heterocyclic compounds which have proved their activity in required field

**1.2 Five-Member Ring Heterocyclic compounds:** The five-membered heterocyclic moties are known as 1,2,3-triazoles, imidazoles, pyrazoles and thiazoles. Which are very important pharmacophores in clinical research and medicinal chemistry due to its broad spectrum of activities? There are various pharmacologically and biologically active heterocyclic compounds, many more of which are in regular clinical use. The pyrimidines and its derivatives play vital role in biological properties like Neurological Activities, Antifungal Activity, Anticancer Activity, Anti allergic Activities, Cardiovascular Activities

**1.3 Antibacterial Activities:** Bacteria are the simplest and smallest unicellular organisms found in clusters. These are highly effective and relatively non-toxic drugs which are available for the treatment of infections which is cause due to bacteria. it is provided tough competition for the medicinal chemist, attempting preparation of new antibacterial agents.

**1.4 Neurological Activities:** Various heterocyclic agents prevent the psychosis, convulsions, anxiety, depression, and other CNS related disorders.

**1.5 Anti allergic Activities:** Most of the heterocyclic compounds have shown the Herbicidal activity, anti allergic activity. These are the drugs which destroy grasses and unwanted plants along with without affecting the food crops. Some substituted heterocyclic compounds posses this activity.

**1.6 Anti cancer Activity:** Anticancer refers to a group of disease caused by several agents like as radiant energy, chemical compound, Cancer is characterized by an uncontrolled & abnormal division of cell exhibiting varying degree of malignancy which is reason to produce tumor and infect adjacent normal tissue. These agents are used for either kill cancer cells or treatment of cancer or modify their cell growth.

**1.7 Cardiovascular Activities:** Various heterocyclic moieties prevent the hypertension,

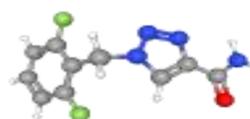
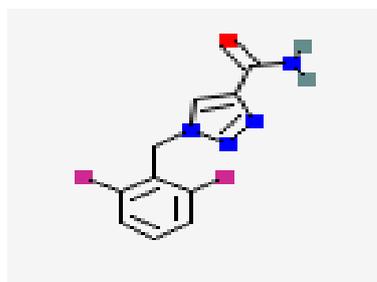
**1.8 Biological activity of Nitrogen containing Pharmacophore:** Many of the nitrogen-containing heterocyclic compounds exhibit biological and clinical activities and it is a reason for them to be tested as effective drug and pharmacophores. They have been used for the construction complex drug substances. For example, indole is a prominent structural moiety for numerous compounds which possessing Anticancer refers to a group of disease caused by several agents like as radiant energy, chemical compound, Cancer is characterized by an uncontrolled & abnormal division of cell exhibiting varying degree of malignancy which is reason to produce tumor and infect adjacent normal tissue. These agents are used for either kill cancer cells or treatment of cancer or modify their cell growth. Anti-inflammatory, anticancer activity, antifungal, insecticidal, or biologically active compounds may contain two or more cycles of the different types. Also purine nucleobases, adenine and guanine, are constructed from two rings: the 6-membered acceptor pyrimidine, and 5-membered donor pyrazole. Besides, pharmacophores may contain additionally various exocyclic substituents.

Nitrogen containing heterocyclic compounds play a very important role in transmission of nerve impulses, biochemical reaction like provision of energy, metabolism and transfer of hereditary information. Heterocycles containing nitrogen atom which are capable to contribute hydrogen bonding. The chemical compounds or biological organisms used to kill or increase the growth of fungi or fungal spores are known as fungicides. In 17th century first use salt water to control bunt of brining of grains, mixture of lime and copper sulfate could effectively control downy mildew of grapes. The chemical substance used to control or kill the pest population is known as insecticide. Heterocyclic compounds are having very high potential towards insecticidal activity.

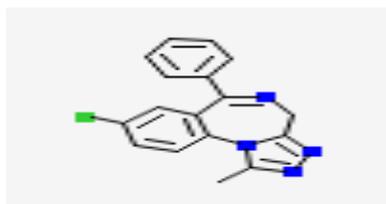
Pesticides used to kill unwanted plants are known as herbicides. They are also known as weed killer The heterocyclic compounds also shared a contribution to sectors like agrochemicals growth regulator. The various chemical substances that extremely influence the development and differentiation of plant cells, tissues and organs are known as plant growth regulators. A famous plant growth regulator is known as indole acetic acid Heterocycles have very importance not only biologically but also industrially and clinically. The majority of pharmaceutical products that mimic natural products with biological activity are heterocycles. There were approximately 20 million chemical compounds identified by the end of the second millennium, more than two thirds were fully or partially aromatic and approximately one-half were hetero aromatic. Focus of Recent research in synthetic organic chemistry is the heterocycles. The synthesis of various biologically active heterocycles, especially the triazoles, imidazole, benzimidazole, pyrimidine, pyrazole, pyrrole, pyrrolidine, pyranochromene and pyridazine are important

**1.9 Triazoles:** The triazole and its derivatives consist of very important class of heterocycles which find pivotal position especially in clinical, medicinal chemistry due to their unique biological activities as potent antimicrobial, anti-inflammatory, local anesthetic, analgesic, anticonvulsant, antimalarial, and anti-HIV agents. The top selling active pharmaceutical ingredients comprise of triazoles nucleus are anastrozole, rizatriptan, letrozole, itraconazole, sitagliptin, maraviroc, alprazolam and rufinamide

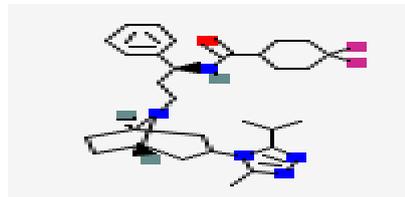
Rufinamide:  $C_{10}H_8F_2N_4O$



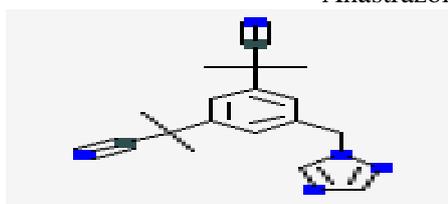
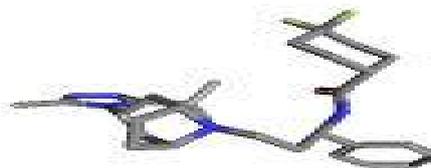
Alprazolam :  $C_{17}H_{13}ClN_4$



Maraviroc:  $C_{29}H_{41}F_2N_5O$



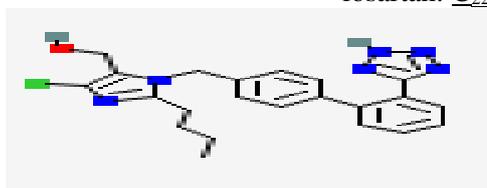
Anastrozole:  $C_{17}H_{19}N_5$



## 2. IMIDAZOLE:

The imidazole heterocyclic ring forms the core of many biologically and pharmacologically important molecules. In general the imidazole derivatives are found naturally found in the Vitamin B12, amino acid histidine. a component of DNA base structure. Imidazole is very important class of heterocyclic molecule having wide range of activities like, antimicrobial and antioxidant. Anticancer the top selling active pharmaceutical ingredients of imidazole nucleus are Losartan, ondasetron and Olmesartan

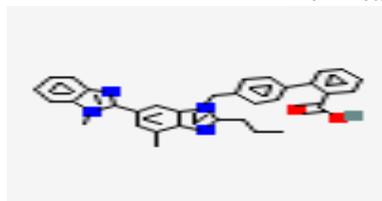
losartan:  $C_{22}H_{23}ClN_6O$



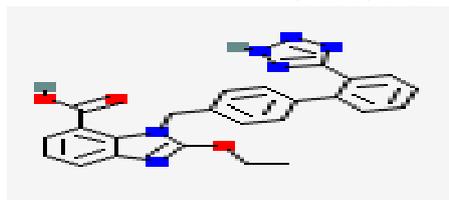
### 2.1 Benzimidazole:

The benzimidazole and their derivatives are considered as important bioactive heterocyclic compounds which found to possess a wide range of biological activities, such as anti HIV, antiulcer, anticancer, antihypertensive, antihistamine, antioxidant, antibacterial, anti-inflammatory, antiproliferative, anti-allergic. The top selling active pharmaceutical ingredients comprise of benzimidazole nucleus are pantoprazole and candesartan. telmisartan, esomeprazole,

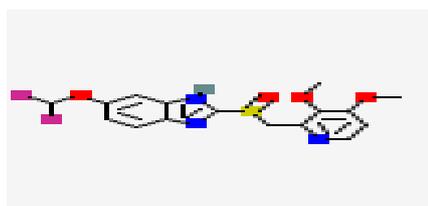
Telmisartan:  $C_{33}H_{30}N_4O_2$



Candesartan:  $C_{24}H_{20}N_6O_3$

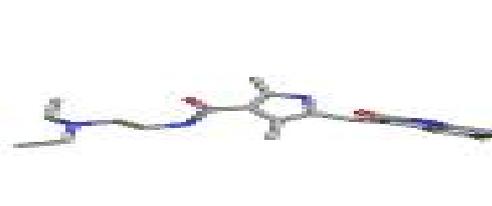
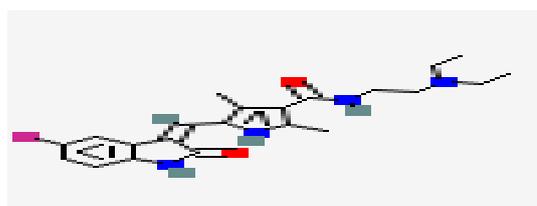


Pantoprazole:  $C_{16}H_{15}F_2N_3O_4S$

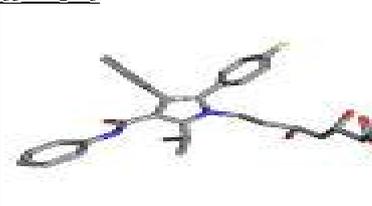
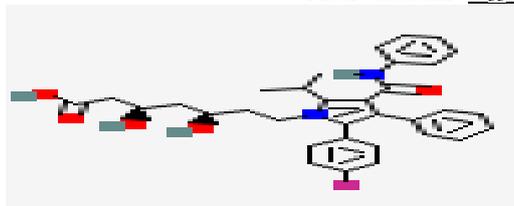


**2.2 Pyrroles:** Pyrroles are very important and unique class of organic heterocyclic compounds which found in many natural products like bile pigments and vitamin B12, heme, chlorophyll, these are contain functionalized pyrroles subunits as the building blocks. Pyrrole is an important heterocyclic ring explored after the discovery of atrovastatin and many compounds containing it exhibit interesting biological activities such as anti-inflammatory, antioxidant, antibacterial, antifungal, and antitumor effects. The top selling active pharmaceutical ingredients comprise of pyrrole nucleus are, Atrovastatin, Sunitinib, fluvastatin, rosuvastatin, nitrofurantoin and pitavastatin.

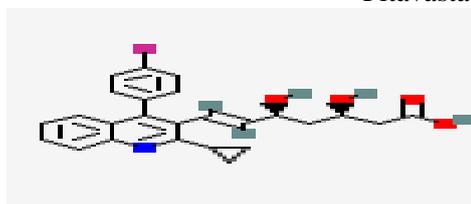
Sunitinib:  $C_{22}H_{27}FN_4O_2$



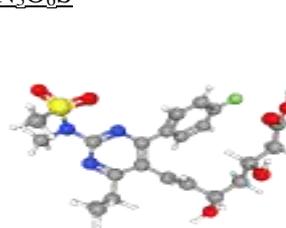
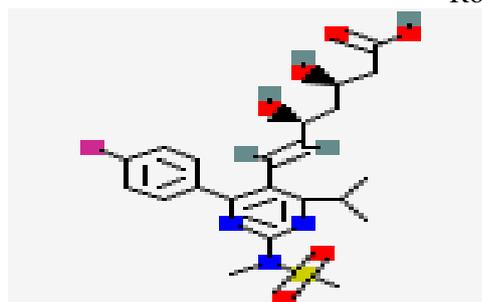
Atrovastatin:  $C_{33}H_{35}FN_2O_5$



Pitavastatin:  $C_{25}H_{24}FNO_4$

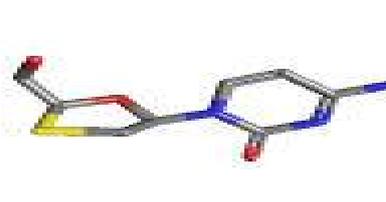
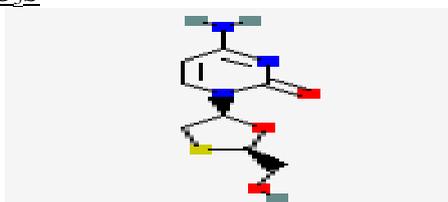


Rosuvastatin:  $C_{22}H_{28}FN_3O_6S$

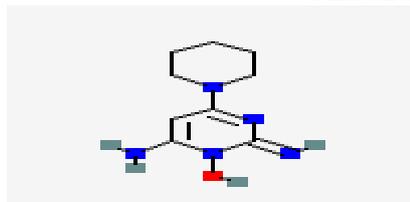


**2.3 Pyrimidine :**Pyrimidines and their derivatives are considered as important bioactive heterocycles which consist biological activities like muscarinic agonist activities and antiviral, anti-inflammatory, Tetrahydro-pyrimidine is an important heterocyclic compound which is responsible for salt and heat sensitivity of protein–DNA interactions. The top active pharmaceutical ingredients consist of pyrimidine nucleus are, Floxuridine, Lopinavir, Lamivudine, 5-fluoro flucytosine, Zidovudine, Pyrimethamine and Minoxidil.

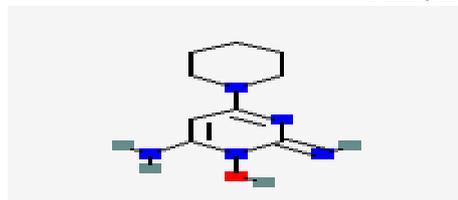
Lamivudine:  $C_8H_{11}N_3O_3S$



Minoxidil:  $C_9H_{15}N_5O$

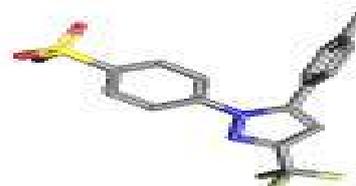
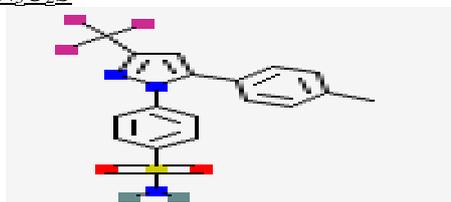


Minoxidil:  $C_9H_{15}N_5O$



**Pyrazole:** Pyrazoles consist a wide range of agricultural, biological and pharmaceutical activities. Pyrazoles have wide range of application in polymer industry, food industry, cosmetic colorings and as UV stabilizers. The pyrazole nucleus is presently top selling drugs such as Sildenafil citrate and Celecoxib, Remonabant

**Celecoxib:**  $C_{17}H_{14}F_3N_3O_2S$



### 3. CONCLUSION:

Literature survey shows that a number of heterocyclic compounds having condensed ring system are possess various types of physiological, biological activities. Various heterocyclic derivatives are forms various pharmacological activities such as analgesic, neurological, anti allergic, herbicidal, anticancer antimicrobial, anti-inflammatory & cardiovascular

### REFERENCES:

- [1]. Baumann M, Baxendale I. R, Ley S. V, Nikbin N. Beil. J. Org. Chem. 2011, 7, 442-495.
- [2]. Gupta A, Rawat S. Synthesis and Cyclization of Benzothiazole: Review. J Curr Pharm Res, 2010, 3(1), 13-23.
- [3]. Mudasir B. R, Rayees M. H, Abdul R. Synthesis, characterization and anti-bacterial activity of 5-(alkenyl)-2-amino- and 2-(alkenyl)-5-phenyl-1,3,4-oxadiazoles. J. Chem. Sci, 2010, 122(2), 177–182.
- [4]. Trilok C, Neha G, Suman L, Saxena S. S. Synthesis of substituted acridinylpyrazoline derivatives and their evaluation for anti-inflammatory activity. Eur J. Med Chem, 2010, 45, 1772-1776.
- [5]. Asif H, Ajmal M. Synthesis of novel 1, 3, 4-oxadiazole derivatives and their biological properties. Acta Pharm. 2009, 59, 223-233.
- [6]. Mohammad Asif. A Mini Review: Biological Significances of Nitrogen Hetero Atom Containing Heterocyclic Compounds. International Journal of Bioorganic Chemistry. Vol. 2, No. 3, 2017, pp. 146-152. doi: 10.11648/j.ijbc.20170203.20
- [7]. Sarita Khandelwal, Mahendra Kumar, in Green Approaches in Medicinal Chemistry for Sustainable Drug Design, 2020
- [8]. Ashraf Brik, in Comprehensive Natural Products II, 2010

# “A STUDY OF FDI IN RETAIL SECTOR AND JOB OPPORTUNITIES” (SPECIAL REFERENCE TO MARATHWADA & VIDARBHA)

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## ABSTRACT:

*It is seen that for any country to progress, it is required to have good production capabilities. To achieve good production capabilities the required capital is the basic element. This means that capital investment becomes a primary need for any country to develop industries. For India being an underdeveloped country, capital is more needed for competing with other countries for technology and infrastructure development. This paper gives result of study performed on FDI in retail sector and job opportunities of this FDI in the region. The paper gives analysis of the study with literature review concluding the study.*

**Keyword:** Foreign Direct Investment, Job opportunity, Shopping mall, Retail sector.

## 1. INTRODUCTION:

It is seen that for any country to progress, it is required to have good production capabilities. To achieve good production capabilities the required capital is the basic element. This means that capital investment becomes a primary need for any country to develop industries. For India being an underdeveloped country, capital is more needed for competing with other countries for technology and infrastructure development. New economic reforms were designed and implemented by India in the year 1991 which was known as liberalization policy. With the deregulation of financial markets<sup>1</sup>, huge investments especially in field of science and technology were seen. The FDI inflow to India is increased from \$4029 million in 2001 to \$186.79 billion to 2010<sup>2</sup>. When compared with other developed nation like china, the amount is less, but this investment helped India to change economically. Because of liberalization policy adopted by India since last two decades, findings of the panel exercise in 10 select EMEs (Emerging Market Economics), suggest that this make significant impact on FDI inflows<sup>3</sup>. In last decade the FDI inflow has been seen increasing that promoted the performance of Indian industries.

India has signed WTO's GATT Services, which include wholesale and retailing services, had to open up the retail trade sector to foreign investment<sup>4</sup>. It has been observed a slowdown in world marked since couple of years; still growth has been seen in retail sector resulting in single digit inflation index in 2011<sup>5</sup>. It is seen that political uncertainty affected the FDI inflow in country. Problem of corruption is also a matter of concern which is hampering the process to attract more FDI. FDI provides a win-win situation<sup>1, 6</sup> for host and home countries. Here the host country will get new technology and management techniques with foreign exchange<sup>7</sup>. Whereas home country will get a new market for its industrial growth, low manufacturing cost, Increases Income level, etc. This will also help the host country to develop and increase financial capital, different skills<sup>7</sup>, access to market abroad and entrepreneurship. Globally trade or business dates back to 6000 BC. It was introduced by Mesopotamia tribes. Barter system as a system of trade was oldest form of trade. This system has been used for hundreds of years and long before money was invented. People exchanged services and goods for other services and goods reciprocally. Later money was invented, for years demands of customers were fulfilled by hawkers. These hawkers are many times referred as the one of the earliest form of retailers. Perishable items were sold mostly at local level<sup>8</sup>. In this paper the FDI in retail is dealt. Here the job opportunity in retail sector with FDI in shopping malls is analyzed. The research shows the position of jobs in retails for human resource with any level of education. The paper constitute of literature review with data analysis in job opportunity in FDI based retail sector before conclusion.

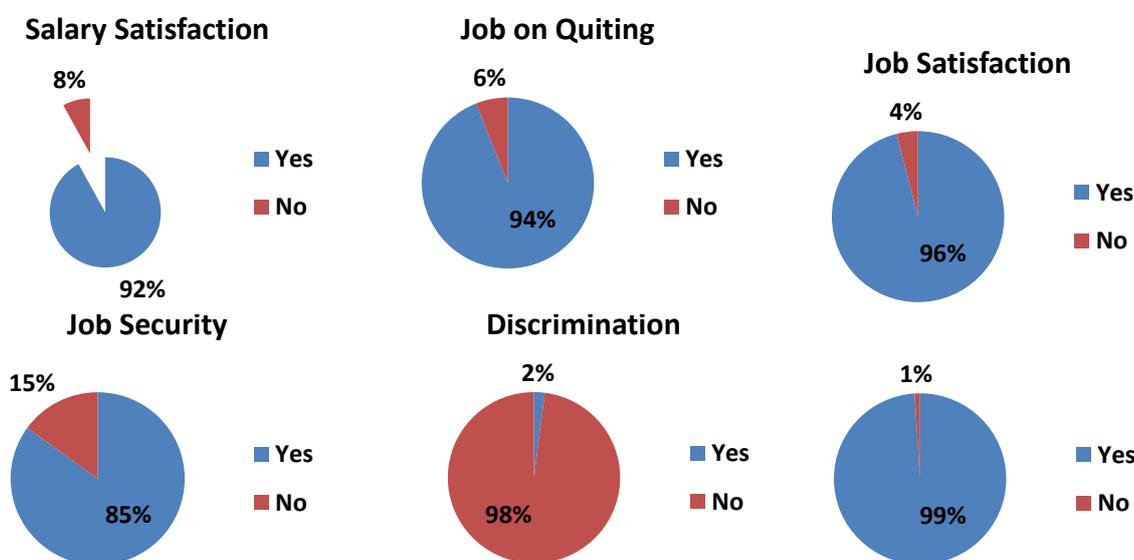
## 2. LITERATURE REVIEW:

Jain and Sukhlecha (2012)<sup>9</sup> in their study tried to offer reasons on the idea of which FDI should be allowed in multi-brand retailing in India. They suggested that FDI should be allowed with some recommendations like establishment of national commission, appropriate lending policies by RBI, fixing of co-operative stores for little retailers. Manik and Singla (2013)<sup>10</sup> used qualitative techniques like SWOT analysis and five force M. Porter's model to explore the impact of FDI on retail sector. The study concluded that FDI reforms will have a positive impact on Indian Economy. Modern retail is that the booming word but must be taken look after fair usage of extended retail power. Khare M. (2013)<sup>11</sup> in the study focused upon the impact of FDI policy on Indian retail sector. The researcher analyzed to highlight the opportunities and challenges faced along with the shortcomings of FDI policy. The study highlighted

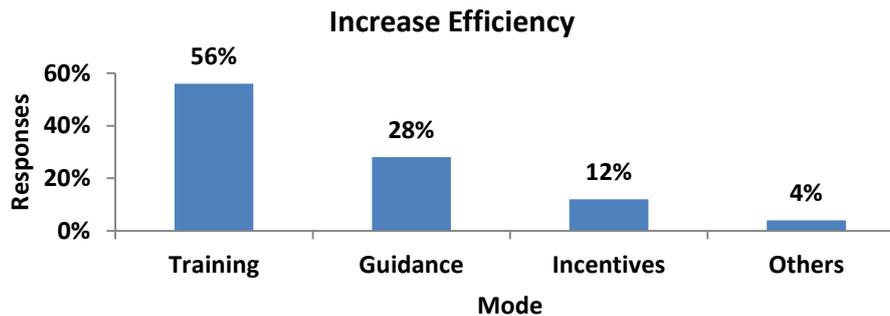
strengths of the FDI policy for young and dynamic manpower, enhanced employment opportunities. Krishnan and Bhandare (2013)<sup>12</sup> pointed out that with the changing trends of retailing in India, traditional and new formats will co-exist. Kumar and Bansal (2015)<sup>13</sup> discussed the negative impact of allowing FDI into Indian retail business and concluded that FDI will be advantageous for various stakeholders like farmers, customers, small retailers, existing big retailers & SMEs and rural youth. Mukherjee et. al. (2011)<sup>14</sup> suggested that retail FDI policy must specialise in benefits of the bulk of Indian consumers by giving them access to branded products at lower prices. To protect the interest of consumers, the Competition Act 2002, the buyer Protection Act (amendment) 2002 must be reviewed and must be amended as per requirement.

### 3. DATA ANALYSIS:

Research was done considering the role of FDI in creating job opportunities in Marathwada and Vidarbha division of Maharashtra state in India. A questionnaire based study was performed asking to managers and supervisors regarding job opportunities being created by FDI in retail sector. There are few analysis discussed below. A question was asked to know whether there are ample of jobs available in the market on quitting from present employment. Positive response was received from 94% respondents. 100% employees working in shopping malls are satisfied with the timely salary they are getting. 92% of the employees working in malls are satisfied with the salary they are being paid. This is a force to bind the employee with the mall and protect unnecessary movement of employee. Similarly a question was asked to know the job satisfaction amongst the employees of malls. It was cleared that 96% employees are satisfied with the job in malls. Another question was asked to know the reason of working in the malls and received mixed response. 56% employees are working malls for large income. They are getting salaries paid more than in the present unorganized retail sector. 23% employees agreed that there is job security and 17% said they are working for the reason of convenience. This doesn't means that only 17% of the employees are considering job security. On a question asked regarding rise in status of present life compared to before working in mall, we received 98% positive response. In case of job security 85% responses were positive. A question was asked to know if there is any discrimination at the work place and 98% responded in negative and 99% cooperation from staff.



On asking about increase in efficiency of the employees managers responded that there are factors which increases the efficiency of an employee. They guided training, guidance, incentives and some other responses. On asking this we received the following response.



Here on these analyses it can be interpreted that over all with the FDI in retail organized retail sector has better future. It can also be said that FDI in retail helps in generating job opportunities of the region.

#### 4. CONCLUSION:

Retailing is not just stocking and selling but is more about efficient supply chain management, developing vendor relationships, quality customer service, efficient merchandising and timely promotional campaigns. The share of organized retail is more so just in case of developed countries thanks to the busy life schedule and lack of your time for buying the commoner, high literacy rate, exposure to media, greater availability and penetration of sort of commodity into the interiors of the country and better shopping experience. In contrast, the share of organized shops in developing countries is comparatively very less. On the opposite hand, the unorganized retailing refers to the normal formats of low-cost retailing, for instance, the local kirana shops; owner managed general stores, convenience stores, hand cart and pavement vendors, etc. This market is characterized by typically small retailers, more susceptible to evasion and lack of labour law supervision. This market is more common in developing countries. The generic growth is probably going to be driven by changing lifestyles and by strong surge in income, which successively are going to be supported by favorable demographic patterns. Rapid growth in international quality retail space brings joy to shoppers and shopping malls are getting increasingly common in large cities. The number of department shops is growing at a way faster pace than overall retail, at 24 per cent annually. Supermarkets are taking an increasing share of general food and grocery trade over the last 20 years. The development of mega malls in India is adding new dimensions to the booming retail sector. Shopping experience within the nation of shopkeepers is changing and changing in no time. There is significant development in retail landscape not only within the metros but also within the smaller cities. Even ITC went one step ahead to revolutionize rural retail by developing 'Choupal Sagar' a rural mall. On one hand there are groups of visionary corporate working constantly to enhance upon urban shopping experience and on the opposite hand some companies try to infuse innovative retail experience into the rural set up. As it is discussed already that the employability and employment status of Indian unemployment in retail sector will be increased due to FDI in retail, yet it will take time to get recognition to this job as a career option especially in the educated section of population. As per the facts, it is clear that around 9.3% to 9.4% of jobs belong to retail sector. If we calculate the CAGR value, we come to a conclusion that between 2006 and 2011, the retail sector provided employment to around 41,000 people in 2011 as compared to 37,000 in 2006 is growing at a CAGR of 2%.

#### REFERENCES:

1. Rajib Bhattacharyya (2012) "The Opportunities and Challenges of FDI in Retails in India", ISOR Journal of Humanities and Social Science (JHSS), ISSN:2279-0837,ISBN:2279-0845. Vol. 5, Issue 5, pp-99-109.
2. Dr. Ravindranath N. Kadam (2012) "'Attracting Foreign Direct Investment by India' A Today's Great Challenge", International Journal of Social Science Tomorrow, Vol.1, Issue 4 ISSN: 2277-6168.
3. "Foreign Direct Investment Flows to India" prepared in the Division of International Trade and Finance of the Department of Economic and policy Research, Reserve Bank of India.
4. Rupali Gupta (2012) "FDI in Indian Retail Sector: Analysis of Competition in Agri-Food Sector", An Internship Project Report.
5. Dr. G. S. Popli and Prof. Sima Singh "Impact of Multi Brand Foreign Direct Investment in Retail Sector in India".
6. Team Yes Bank (2012) "FDI in Retail – Advantage Farmers" by food and Agribusiness Strategic Advisory and Research (FASAR).
7. Jonardan Koner and Avinash Purandare (2013) "Foreign Direct Investment and Economic Growth: A Time Trend Analysis", Tenth AIMS International conference on Management
8. Anusha Chari and T. C. A. Madhav Raghavan (2011) "Foreign Direct Investment in India's Retail Bazaar: Opportunities and challenges".

9. Jain M. and Sukhlecha M. (2012) “FDI in Multi-brand Retail: Is it the Need of the Hour”, Zenith International Journal of Multidisciplinary Research, Vol. 2, Issue 6, [www.zenithresearch.org.in](http://www.zenithresearch.org.in)
10. Joseph M., Soundarajan N., Gupta M. and Sahu S. (2008) “Impact of organized retailing on the unorganized sector”, Working paper no-222, ICRIER, [http://icrier.org/pdf/Working\\_Paper222.pdf](http://icrier.org/pdf/Working_Paper222.pdf)
11. Khare M. (2013) “Foreign Direct Investment in Indian Retail Sector - A SWOT Analysis”, Anusandhan AISECT University Journal, Vol. 2, Issue 4
12. Krishnan M. and Bhandare U. (2013) “A Study of Emerging Trends in Indian Retailing”, Indian Journal of Applied Research, Vol. 3, Issue 8
13. Kumar P. and Bansal S. (2015) “SWOT Analysis: What does FDI hold for the Indian Retail Sector in 21<sup>st</sup> century?” International Journal of Research in Management, Economics & Commerce, Vol. 5, Issue 1
14. Mukherjee A., Satija D. and Goyal T. (2011) “Impact of the Retail FDI Policy on Indian Consumers and the Way Forward”, ICRIER, Policy series no. 5, [http://icrier.org/pdf/Policy\\_Series\\_No\\_5.pdf](http://icrier.org/pdf/Policy_Series_No_5.pdf)

# INFLUENCE OF ADDITIVE TiO<sub>2</sub> ON STRUCTURAL AND MAGNETIC PROPERTIES OF Ni<sub>0.6</sub>-Zn<sub>0.4</sub> FERRITE SYSTEM

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## ABSTRACT:

*In this paper, structural and magnetic properties of Ni<sub>0.6</sub>-Zn<sub>0.4</sub> ferrite by addition of additive TiO<sub>2</sub> were investigated. Ni<sub>0.6</sub>Zn<sub>0.4</sub>Fe<sub>2</sub>O<sub>4</sub>+xTiO<sub>2</sub> (where x = 0.0 and 0.2) were prepared. The X-ray and Infrared spectroscopy examination was done by addition of TiO<sub>2</sub> impurity, revealing X-ray samples having I-phase spinel structure. Influence of TiO<sub>2</sub> on the spinel structure was investigated. Lattice constant and X-ray density were calculated from the XRD data. Density of samples measured and porosity calculated. Magnetization measurement gave magnetic properties to study ionic magnetic interaction. This paper focuses on effect of additive TiO<sub>2</sub> on properties of Ni<sub>0.6</sub>-Zn<sub>0.4</sub> ferrite.*

**Keywords:** Structural, Additive, Ferrite, Magnetic, TiO<sub>2</sub>.

## 1. INTRODUCTION:

The Ferrites are the class of magnetic materials which consist of a mixed oxide of iron and other elements that are used prepared crystalline structure. The crystalline structure is made by heating the ferrite material at an ultra high temperature for a proper time and protocol. The general formula of composition of ferrites is MFe<sub>2</sub>O<sub>4</sub> where M any divalent metals. One of the most attractive metal combinations in ferrite is nickel and zinc (Ni<sub>0.6</sub>-Zn<sub>0.4</sub>) which can be easily magnetized. Magnetic nanoparticle has several applications in industrial and medical field [1]. Ni<sub>0.6</sub>-Zn<sub>0.4</sub> ferrites has widely used in many technological applications. Ni<sub>0.6</sub>-Zn<sub>0.4</sub> ferrites is a soft magnetic ceramic that has spinel configuration based on a face-centered cubic lattice of the oxygen ions, Nowadays, these materials are largely studied in the search for improved properties [2] and new applications,[3] especially in the nano-metric scale as ultrafine powders and thin films.[4] Ni<sub>0.6</sub>-Zn<sub>0.4</sub> have been used as high-frequency ferrites for transformers core, rod antennas, radio frequency and more recently as microwave absorbing materials. Ferrite nanoparticles have received increased attention due to its chemical stability and high magneto-crystalline anisotropy, which can lead to a broad range of applications, from medicine and pharmacy to electronics and mechanics.[5]

The magnetic properties of Ni<sub>0.6</sub>-Zn<sub>0.4</sub> ferrites are strongly dependent on their chemical composition, porosity, grain size, etc. [6]. Regarding to the applications, the most important properties of spinel ferrites are conductivity and type of dominant charge carriers, saturation magnetization, coercivity etc. The spinel ferrites exhibit relatively high resistivity, sufficient low eddy current and dielectric loss for microwave applications. Moreover, the magnetic properties of ferrites, as well as the others iron oxides, change considerably when they are prepared as nanoparticles. Ferrites are commonly produced by a ceramic process involving high-temperature solid-state reactions between the constituent oxides or carbonates. In general, spinel ferrites are prepared by ceramic technology in which oxides or carbonates of the respective ions are used as a raw material [7]. The ceramic method is most convenient, easy and cost effective to obtain dense and high quality spinel ferrite materials. This method requires high temperature about 1100°C to complete the solid state reaction. Besides, the preparation technique and additives play an important role in modifying the properties of spinel ferrite. Usually various oxides like niobium oxide, vanadium oxide, tungsten oxide etc. are used as additives. It is reported that additives play an important role in governing the structural, electrical and magnetic properties of spinel ferrite [8]. In the literature, various additives like TiO<sub>2</sub>, WO<sub>3</sub>, Nb<sub>2</sub>O<sub>5</sub> etc were incorporated in the spinel lattice to understand their effect on the structural, electrical, and magnetic properties [9].

To the best of our knowledge, effect of TiO<sub>2</sub> additive in mixed Ni<sub>0.6</sub>-Zn<sub>0.4</sub> spinel ferrite on the various properties has not been systematically investigated. In this work, we report the effect of TiO<sub>2</sub> additives in Ni<sub>0.6</sub>Zn<sub>0.4</sub>Fe<sub>2</sub>O<sub>4</sub> spinel ferrite prepared using solid state reaction method on the structural and magnetic properties as a function of TiO<sub>2</sub> mole percent.

## 2. EXPERIMENTAL:

Nickel zinc spinel ferrite of chemical formula Ni<sub>0.6</sub>Zn<sub>0.4</sub>Fe<sub>2</sub>O<sub>4</sub> was prepared by the solid state reaction method. The oxides used as Nickel oxide (NiO), Zinc oxide (ZnO), Ferric oxide (Fe<sub>2</sub>O<sub>3</sub>) and Titanium oxide (TiO<sub>2</sub>) of high purity (≥ 99.9%) were used as a raw material. The respective oxides were weighed accurately and mixed homogeneously using agate pestle mortar to yield the given compositions Ni<sub>0.6</sub>Zn<sub>0.4</sub>Fe<sub>2</sub>O<sub>4</sub>+xTiO<sub>2</sub> (x=0.0, 0.2). Initially, the oxide ingredients were heated at 200°C to remove the moisture. Then the mixed powder was heated at 900°C for 24 h and again ground it for 3h. The calcined mixed powder was pressed into circular disc shaped pellet of 10 mm diameter and

~3 mm thickness at a pressure of 5 tons using a hydraulic press. Polyvinyl alcohol (PVA) was used as binder which was burnt out during high temperature sintering. These pellets were then sintered at 1080 °C for 6 h in an alumina crucible in air atmosphere. The prepared sample of each composition was used for the characterization and various measurements. The pellets were polished by a fine emery paper to make their faces smooth and parallel.

### 3. RESULTS AND DISCUSSION:

The crystal structure of Ni<sub>0.6</sub>Zn<sub>0.4</sub> ferrites with the addition of TiO<sub>2</sub> for various composition (x=0.00 and 0.2) was analyzed using an X-ray diffraction (XRD) technique to identify the formation of a single phase cubic spinel structure. The phase identification and structural analysis of the samples Ni<sub>0.6</sub>Zn<sub>0.4</sub>Fe<sub>2</sub>O<sub>4</sub>+xTiO<sub>2</sub> (x =0.0 and 0.2) was done by XRD patterns which are shown in figure 1(a) and (b).

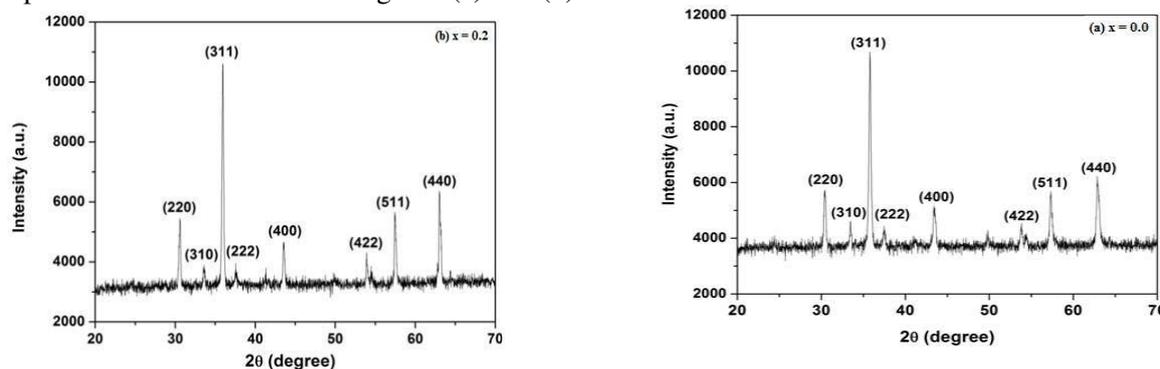


Fig. 1 XRD pattern of Ni<sub>0.6</sub>Zn<sub>0.4</sub> Fe<sub>2</sub> O<sub>4</sub> + TiO<sub>2</sub> (a) x = 0.0 and (b) x = 0.2

The observed peaks in XRD patterns are sharp and intense. The presence of planes as (220), (311), (222), (400), (422), (511) and (440) in the XRD pattern which are allowed in cubic spinel structure reveals the formation of cubic spinel structure of each sample. Thus, the obtained XRD pattern exhibits the single phase cubic spinel structure [10]. An additive forming a liquid phase during sintering gives rise to pore-free grains and improves mass transport mechanisms due to the capillary forces between particles. The oxides of transition elements TiO<sub>2</sub> melt at 1843 °C and form a liquid phase [11]. The incorporation of Ti<sup>4+</sup> ions into the spinel introduces complexities in the system such as creation of Fe<sup>2+</sup> ions and precipitation of Fe<sub>2</sub>O<sub>3</sub> as a second phase. The structural parameters such as lattice parameter, crystallite size and X-ray density were determined using XRD data and their values are tabulated in table 1. The lattice constant of the samples Ni<sub>0.6</sub>Zn<sub>0.4</sub>Fe<sub>2</sub>O<sub>4</sub>+xTiO<sub>2</sub> (x=0.0 and 0.2) spinel ferrite was calculated using the following standard relation [12]

$$\frac{1}{d^2} = \frac{(h^2+k^2+l^2)}{a^2} \quad (1)$$

where, (d) is interplanar spacing; (h k l) is Miller Indices.

The lattice parameter (a) as calculated from the XRD data has been observed for both the sample is 8.380 Å and 8.381 Å for x=0.0 and 0.2 respectively. It is noticed from the values of lattice parameter does not vary much rather it remains almost constant. This can be explained from the compositional formula that, although Ti<sup>4+</sup> ions have a smaller radius (0.59 Å) than Fe<sup>3+</sup> ions (0.64 Å) and Ni<sup>2+</sup> ions (0.69 Å), its incorporation into lattice results in the creation of some Fe<sup>2+</sup> ions which have an ionic radius (0.74 Å) [13]. Similar variation of lattice parameter is reported in the literature. The bulk density of TiO<sub>2</sub> added Ni<sub>0.6</sub>Zn<sub>0.4</sub> spinel ferrite specimens has been determined by the Archimedes principle, while the X-ray density for each composition was calculated using the relation [14]:

$$d_B = \frac{ZM}{VN_A} \quad (2)$$

where, Z is the number of molecules per formula unit (Z = 8 for spinel system), M the molecular weight, V is the unit cell volume and N<sub>A</sub> is the Avogadro's number.

The obtained values of bulk density and X-ray density are given in relation (2). It is observed that the bulk density found to be 4.246 and 4.286 by the addition of additive V<sub>2</sub>O<sub>5</sub>. The increase in density can be attributed to the fact that for the present samples anion vacancy concentration increases which prohibits the discontinuous grain growth with results in increase in the density. The percentage porosity P (%) was calculated using a standard relation [15].

$$p\% = 1 - \left(\frac{d_B}{d_x}\right)\% \quad (3)$$

where, d<sub>B</sub> is the bulk density and d<sub>x</sub> is the X-ray density.

The values of porosity for each sample were obtained and their values are given in table 1. The porosity of given sample found to be 21.906 and 21.416. The change in the density and porosity with increasing Ti<sup>4+</sup> content may be due to the reduction of oxygen vacancies which play a predominant role in accelerating densification; this means that the decrease in oxygen ion diffusion would retard the densification. The X-ray density was found higher than the

bulk density. This can be attributed to the existence of pores which depend on the sintering condition [16]. Average crystallite size of TiO<sub>2</sub> added Ni<sub>0.6</sub>-Zn<sub>0.4</sub> spinel ferrite estimated using Scherrer's equation [17].

$$t = \frac{0.9\lambda}{\beta \cos \theta} \quad (4)$$

where,  $\beta$  is the full width half maximum intensity of a Bragg's reflection,  $\lambda$  is the wavelength of the X-ray radiation,  $t$  is the average crystallite size and  $\theta$  is the Bragg's angle.

It observed that the crystallite size increases from 2.453 to 2.666 due to change increases in lattice parameter by addition of TiO<sub>2</sub>. The distance between magnetic ions (hopping length) in the tetrahedral site ( $L_A$ ) and octahedral site ( $L_B$ ) was determined according to the relation [18].

$$L_A = a\sqrt{3}/4 \quad (5)$$

$$L_B = a\sqrt{2}/4 \quad (6)$$

The variation of the hopping length for A-site ( $L_A$ ) and the B-site ( $L_B$ ) with the Ti<sup>4+</sup> dopant is tabulated in Table 3. It is observed that the distance between magnetic ions (hopping length) of  $L_A$  and  $L_B$  exhibits similar behavior as that of lattice constant. The values of the tetrahedral and octahedral bond length ( $d_{AL}$  and  $d_{BL}$ ), the tetrahedral edge ( $d_{AE}$ ) and the shared and unshared octahedral edge ( $d_{BE}$  and  $d_{BEU}$ ) were calculated by using the relations [19] and their values are presented in Table 3.

$$d_{AL} = a(3(u-1/4))^{1/2} \quad (7)$$

$$d_{BL} = a[3u^2-(11/4)u+(43/64)]^{1/2} \quad (8)$$

$$d_{AE} = a[2(2u-1/2)]^{1/2} \quad (9)$$

$$d_{BE} = a[2(1-2u)]^{1/2} \quad (10)$$

$$d_{BEU} = a\sqrt{4u^2-3u+11/16} \quad (11)$$

These structural parameters are found to depend on lattice parameter. In the present case, the lattice constant changes with doping of Ti<sup>4+</sup> ions in Ni<sub>0.6</sub>-Zn<sub>0.4</sub> ferrites hence  $d_{AL}$ ,  $d_{BL}$ ,  $d_{AE}$  and  $d_{BE}$ ,  $d_{BEU}$  (shared, unshared) all these structural parameters changes. The radius of tetrahedral sites ( $r_A$ ) can vary, depending upon the nature and ionic radii of the constituent ions. The tetrahedral A-site ionic radii can be calculated using the values of lattice constant 'a' and oxygen positional parameter 'u' ( $u = 0.381\text{\AA}$ ). Table 4 gives the values of tetrahedral radius  $r_A$ , the values of 'r<sub>A</sub>' increases with substitutions of Ti<sup>4+</sup> ions in Ni<sub>0.6</sub>-Zn<sub>0.4</sub> ferrites. The octahedral radius 'r<sub>B</sub>' of all the samples under investigation was calculated using the values of lattice constant 'a' and oxygen parameter 'u'. Octahedral radius 'r<sub>B</sub>' increases with doping of V<sup>5+</sup> ions in Ni<sub>0.6</sub>-Zn<sub>0.4</sub> ferrite. The values of octahedral radius for each sample were found to be greater than tetrahedral radius which can be observed from Table 3. The theoretical lattice parameter ( $a_{th}$ ) can be calculated using this equation. The values of  $a_{th}$  are shown in table 3. The variation of theoretical values of lattice constant is similar to that of experimentally determined lattice parameter.

Table 1: Lattice parameter (a), X-ray density (d<sub>x</sub>), Bulk density (d<sub>B</sub>), Porosity (P %), Unit cell volume (V) and Crystallite size (t) of Ni<sub>0.6</sub>Zn<sub>0.4</sub>Fe<sub>2</sub>O<sub>4</sub>+xTiO<sub>2</sub>.

X	a (Å)	d <sub>x</sub> (gm/cm <sup>3</sup> )	d <sub>B</sub> (gm/cm <sup>3</sup> )	P (%)	V (Å <sup>3</sup> )	Crystallite size (t)
0.00	8.380	5.437	4.246	21.906	588.5	2.453
0.20	8.381	5.454	4.286	21.416	588.7	2.666

Table 2: Ionic radii (r<sub>A</sub>, r<sub>B</sub>), Theoretical lattice parameter (a<sub>th</sub>) and Hopping length (L<sub>A</sub>, L<sub>B</sub>) of Ni<sub>0.6</sub>Zn<sub>0.4</sub>Fe<sub>2</sub>O<sub>4</sub>+xTiO<sub>2</sub> system.

x	r <sub>A</sub> (Å)	r <sub>B</sub> (Å)	a <sub>th</sub> (Å)	L <sub>A</sub> (Å)	L <sub>B</sub> (Å)
0.00	0.5814	0.7247	8.3800	3.6286	2.9628
0.20	0.5816	0.7250	8.3810	2.5283	2.4488

Table 3: Tetrahedral bond (d<sub>AL</sub>), Octahedral bond (d<sub>BL</sub>), Tetra edge (d<sub>AE</sub>) and Octa edge (d<sub>BE</sub>) of Ni<sub>0.6</sub>Zn<sub>0.4</sub>Fe<sub>2</sub>O<sub>4</sub>+xTiO<sub>2</sub> system.

'x'	d <sub>AL</sub> (Å)	d <sub>BL</sub> (Å)	d <sub>AE</sub> (Å)	Shared d <sub>BE</sub>	Unshared d <sub>BEU</sub>
0.00	1.9014	2.0460	3.1050	2.8206	2.9645
0.20	1.9016	2.0462	3.1054	2.8209	2.9648

Table 4: Saturation magnetization (Ms), Remanence magnetization (Mr), Coercivity (Hc), Remanence ratio (Mr/Ms) and Magneton number (nB) for Ni<sub>0.6</sub>Zn<sub>0.4</sub>Fe<sub>2</sub>O<sub>4</sub>+xTiO<sub>2</sub> system.

'x'	MS (emu/g)	Mr (emu/g)	Hc (Oe)	nB (μB)
0.00	62.70	2.15	23.79	2.041
0.20	74.60	2.26	18.71	2.429

Analysis of infrared absorption spectra for all the compositions of TiO<sub>2</sub> substituted Ni<sub>0.6</sub>-Zn<sub>0.4</sub> spinel ferrite in the range of 500-4000 cm<sup>-1</sup> was recorded at room temperature by using SHIMADZU FTIR spectrometer.

The spectrum transmittance (%) against wave number (cm<sup>-1</sup>) is used for interpretation of the results. The study of far-infrared spectra is an important tool to get the information about the position of ions in the crystal. Spectra for the compositions of Ni<sub>0.6</sub>Zn<sub>0.4</sub>Fe<sub>2</sub>O<sub>4</sub>+ xTiO<sub>2</sub> (x = 0.0 and 0.2) have been taken in the range of 500 - 4000 cm<sup>-1</sup>. In the spectra, higher frequency band and lower frequency band are assigned to the tetrahedral and octahedral complexes respectively. The strong absorption bands (ν<sub>1</sub>, ν<sub>2</sub>) around 600 cm<sup>-1</sup> and 400 cm<sup>-1</sup> in each spectrum which are characteristic bands of the tetrahedral and octahedral metal ions have been reported in the literature, which is attributed to tetrahedral and octahedral complexes of Fe<sup>3+</sup>- O<sup>2-</sup>. These two bands have been reported by Waldron in xTiO<sub>2</sub> system. No shift of absorption band ν<sub>1</sub> is observed. The absorption band ν<sub>2</sub> is slightly shifted to a higher frequency side with addition of Ti<sup>4+</sup> ions and is attributed to increase in bond length on the B-site. This suggests that the Ti<sup>4+</sup> ions occupy the B-site. The difference in frequencies between ν<sub>1</sub> and ν<sub>2</sub> is due to changes in bond length (Fe<sup>3+</sup>- O<sup>2-</sup>) at tetrahedral and octahedral sites. The broadening of the ν<sub>2</sub> band is observed in Ti<sup>4+</sup> substituted Ni<sub>0.6</sub> - Zn<sub>0.4</sub>, which suggests the occupancy of Ti<sup>4+</sup> ions on the B-sites [20]. The IR band width depends on the cation distribution of the material.

Literature survey showed that the crystallite size is one of the most important parameters affecting the magnetic properties of ferrites. Grain growth kinetics; however, depend strongly on the impurity content [21]. It is well known that the dominate microstructural parameters which are important for achieving high permeability are a high sintered density, a large average grain size and clean and stress-free grain boundaries [22]. Small amounts of additives can greatly affect the properties of ferrites [23]. The magnetic permeability of polycrystalline ferrite strongly depends on the grain size. When the grain size increases, the permeability increases [24]. TiO<sub>2</sub> is added because of its reactive liquid phase forming properties and because of its beneficial effects when substituted into the lattice. Addition of each Ti<sup>4+</sup> ion, introduces two Fe<sup>2+</sup> to satisfy the site and charge balance, which means that [Fe<sup>2+</sup>] / [Fe<sup>3+</sup>] ratio increases.

#### 4. CONCLUSIONS:

The Ni<sub>0.6</sub>Zn<sub>0.4</sub>Fe<sub>2</sub>O<sub>4</sub>+xTiO<sub>2</sub> spinel ferrites have been synthesized successfully using standard solid state reaction method. X-ray studies of both the samples with additive (TiO<sub>2</sub>) ion exhibit a cubic spinel structure. The change in the values of lattice constant of Ti<sup>4+</sup> ions doped in Ni<sub>0.6</sub>-Zn<sub>0.4</sub> ferrite is due to larger ionic radii of the Ti<sup>4+</sup> ions as compared to the Fe<sup>3+</sup> ions. The X- ray density and bulk density increases with Ti<sup>4+</sup> doped in Ni<sub>0.6</sub> - Zn<sub>0.4</sub> spinel ferrites. However, decreasing trend in porosity was attributed to the substitution of Ti<sup>4+</sup> thereby making all samples denser. The analysis of FTIR spectra, it was found that when Fe<sup>3+</sup> is replaced with Ti<sup>4+</sup> ions, almost minor changes are observed in the band position of FTIR spectra. The saturation magnetization and the magneton number decreases with increasing of V<sup>3+</sup> content as compared to pure Ni<sub>0.6</sub> - Zn<sub>0.4</sub> spinel ferrite.

#### REFERENCES:

- [1]. H. Gu, J. Gao, B. Xu, Multifunctional magnetic nanoparticles: design, synthesis, and biomedical applications, Accounts of chemical research, 42 (2009) 1097-1107.
- [2]. T. Goel, A. Verma, R. Mendiratta, Low temperature processing of Ni-Zn ferrite by citrate precursor method and study of properties, Materials science and technology, 16 (2000) 712-715.
- [3]. J. S. Kim, B. G. Kim, T. J. Yoon, K. N. Yu, M. H. Cho, J. K. Lee, Multifunctional nanoparticles possessing a "magnetic motor effect" for drug or gene delivery, Angewandte Chemie, 117 (2005) 1092-1095.
- [4]. Sugimoto M., The past, present, and future of ferrites, Journal of the American Ceramic Society, 82 (1999) 269-280.
- [5]. H. Benazizi, I. Zaquine, J. Mage, Ferrite thin films for microwave applications, Journal of Applied Physics, 64 (1988) 5822-5824.
- [6]. W. Ahmed, A. Maqsood, I. Gul, Electrical and magnetic characterization of nanocrystalline Ni-Zn ferrite synthesis by co-precipitation route, Journal of Magnetism and Magnetic Materials, 320 (2008) 270-275.
- [7]. B. Toksha, S. E. Shirsath, S. S. Jadhav, S. Patange, K. Jadhav, Influence of Ce<sup>4+</sup> ions on the structural and magnetic properties of NiFe<sub>2</sub>O<sub>4</sub>, Journal of Applied Physics, 110 (2011) 013914.
- [8]. E. Rezlescu, N. Rezlescu, C. Pasnicu, M. Craus, Effects of the rare-earth ions on some properties of a nickel-

- zinc ferrite, *Journal of Physics: Condensed Matter*, 6 (1994) 5707.
- [9]. J. Rahman, S. Akther, M. A. Choudhury, Influence of  $V_2O_5$  Addition on the Magnetic and Electrical Properties of Iron-Deficient Ni-Zn Ferrite, *Journal of Bangladesh Academy of Sciences*, 33 (2009) 145-149.
- [10]. M. Golozar, O. Mirzaee, A. Shafyei, H. Shokrollahi, Influence of  $MoO_3$  and  $V_2O_5$  co-doping on the magnetic properties and microstructure of a Ni-Zn ferrite, *Journal of Alloys and Compounds*, 461 (2008) 312-315.
- [11]. R. Kerby, J. Wilson, Solid-liquid phase equilibria for the ternary systems  $V_2O_5$ - $Na_2O$ - $Fe_2O_3$ ,  $V_2O_5$ - $Na_2O$ - $Cr_2O_3$ , and  $V_2O_5$ - $Na_2O$ - $MgO$ , *Canadian Journal of Chemistry*, 51 (1973) 1032-1040.
- [12]. R. Barkule, A. Raut, D. Kurmude, D. Shengule, K. Jadhav, X-ray diffraction and cation distribution studies in zinc-substituted nickel ferrite nanoparticles, *Journal of Superconductivity and Novel Magnetism*, 27 (2014) 547- 553.
- [13]. P. Vasambekar, A. Gadkari, T. Shinde, Structural analysis of  $Y^{3+}$ -doped Mg-Cd ferrites prepared by oxalate co-precipitation method, *Materials Chemistry and Physics*, 114 (2009) 505-510.
- [14]. M. Kaiser, Influence of  $V_2O_5$  ion addition on the conductivity and grain growth of Ni-Zn-Cu ferrites, *Current Applied Physics*, 10 (2010) 975-984.
- [15]. J. Shrotri, S. Kulkarni, C. Deshpande, A. Mitra, S. Sainkar, P. A. Kumar, S. Date, Effect of Cu substitution on the magnetic and electrical properties of Ni-Zn ferrite synthesised by soft chemical method, *Materials chemistry and physics*, 59 (1999) 1-5.
- [16]. A. El-Sayed, Influence of zinc content on some properties of Ni-Zn ferrites, *Ceramics International*, 28 (2002) 363-367.
- [17]. G. Muralithran, S. Ramesh, The effects of sintering temperature on the properties of hydroxyapatite, *Ceramics International*, 26 (2000) 221-230.
- [18]. P. P. Khirade, S. D. Birajdar, A. V. Humbe, K. Jadhav, Structural, electrical and dielectrical property investigations of Fe-doped  $BaZrO_3$  nanoceramics, *Journal of Electronic Materials*, 45 (2016) 3227-3235.
- [19]. V. Patil, S. E. Shirsath, S. More, S. Shukla, K. Jadhav, Effect of zinc substitution on structural and elastic properties of cobalt ferrite, *Journal of Alloys and Compounds*, 488 (2009) 199-203.
- [20]. U. Chhaya, B. Mistry, K. Bhavsar, M. Gadhvi, V. Lakhani, K. Modi, U. Joshi, Structural parameters and resistive switching phenomenon study on  $Cd_{0.25}Co_{0.75}Fe_2O_4$  ferrite thin film, (2011).
- [21]. L. J. Berchmans, R. K. Selvan, P. S. Kumar, C. Augustin, Structural and electrical properties of  $Ni_{1-x}Mg_xFe_2O_4$  synthesized by citrate gel process, *Journal of Magnetism and Magnetic Materials*, 279 (2004) 103- 110.
- [22]. V. Brabers, Infrared spectra of cubic and tetragonal manganese ferrites, *physical status solidi (b)*, 33 (1969) 563-572.
- [23]. S. Jovanovic, M. Spreitzer, M. Tramšek, Z. Trontelj, D. Suvorov, Effect of oleic acid concentration on the physicochemical properties of cobalt ferrite nanoparticles, *The Journal of Physical Chemistry C*, 118 (2014) 13844- 13856.
- [24]. K. Janghorban, H. Shokrollahi, Influence of  $V_2O_5$  addition on the grain growth and magnetic properties of Mn-Zn high permeability ferrites, *Journal of magnetism and magnetic materials*, 308 (2007) 238-242.

# A STUDY ON SYSTEMATIC ANALYSIS OF APPLICATIONS OR USES OF INTERNET THINGS

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## 1. INTRODUCTION:

“The Internet of Things (IoT) is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.”

The Internet of Things is actually a pretty simple concept, it means taking all the physical places and things in the world and connecting them to the internet.

In the Internet of Things, all the things that are being connected to the internet can be put into three categories:

1. Things that collect information and then send it.
2. Things that receive information and then act on it.
3. Things that do both.

And all three of these have enormous benefits that compound on each other.

## 2. COMPONENTS USED IN IOT

There are four main components used in IoT:

### Low-power embedded systems

Less battery consumption, high performance are the inverse factors play a significant role during the design of electronic systems.

### Cloud computing

Data collected through IoT devices is massive and this data has to be stored on a reliable storage server. This is where cloud computing comes into play. The data is processed and learned, giving more room for us to discover where things like electrical faults/errors are within the system.

### Availability of big data

We know that IoT relies heavily on sensors, especially real-time. As these electronic devices spread throughout every field, their usage is going to trigger a massive flux of big data.

### Networking connection

In order to communicate, internet connectivity is a must where each physical object is represented by an IP address. However, there are only a limited number of addresses available according to the IP naming. Due to the growing number of devices, this naming system will not be feasible anymore. Therefore, researchers are looking for another alternative naming system to represent each physical object.

## 3. CHARACTERISTICS OF IOT

- a) Massively scalable and efficient
- b) IP-based addressing will no longer be suitable in the upcoming future.
- c) An abundance of physical objects is present that does not use IP, so IoT is made possible.
- d) Devices typically consume less power. When not in use, they should be automatically programmed to sleep.
- e) A device that is connected to another device right now may not be connected in another instant of time.
- f) Intermittent connectivity – IoT devices aren't always connected. In order to save bandwidth and battery consumption, devices will be powered off periodically when not in use. Otherwise, connections might turn unreliable and thus prove to be inefficient.

## 4. MODERN APPLICATIONS OR USES OF IOT:

### 1. Smart grid

It's an electricity network that consists of a system of infrastructural, hardware and software solutions that enable two-way communication between all system parts and participants and provide efficient power generation and distribution in the supply chain.

Smart grids provide quality and appropriate electrical energy requirements. Internet of Things technology is the user. This technology receives the quality and efficient energy it needs from smart grids. Enables technology security in energy controllers and communication systems.

It is the new age for users who can able to find and want to use the IoT applications. These applications need safe energy with the Internet of Things. And smart grids infrastructure technology and solution can provide energy with efficiency.

## **2. Smart cities**

IoT is used in smart cities in various areas. With the help of IoT, it is going to be much easier to handle traffic congestion with smart traffic signals that will help in better management of traffic control. Whenever there are roadblocks or closures, transportation is disrupted. IoT devices can provide real-time insights needed to implement plans to tackle such problems and have safe, reliable and efficient public transportation. IoT innovation is making it simpler for constructing energy efficient building structures. With the use of IoT, the devices can be connected to a Smart Management Application that controls nonstandard heating, cooling, lighting, and fire-safety systems. GPS data from smartphones and video monitoring (or sensors embedded on parking spots) can assist a car driver to find an employ parking spot. The data is real time, and it helps to create a virtual parking map. IoT devices can be implemented for the maintenance and control of streetlamps in a more cost-effective way. Sensors with the help of a cloud management solution can help in controlling and scheduling the switching operations. Smart lighting solutions can be implemented with sensors to keep track of movement of people and vehicles.

## **3. Smart homes**

Smart home systems achieved great popularity in the last decades as they increase the comfort and quality of life. Most smart home systems are controlled by smartphones and microcontrollers. A smartphone application is used to control and monitor home functions using wireless communication techniques. We explore the concept of smart home with the integration of IoT services and cloud computing to it, by embedding intelligence into sensors and actuators, networking of smart things using the corresponding technology, facilitating interactions with smart things using cloud computing for easy access in different locations, increasing

## **4. Healthcare**

The current technology in healthcare and a general practice of medicine gets enhanced with the IoT system. Professionals reach is expanding within a facility. The diverse data collected from large sets of real-world cases increases both the accuracy and size of medical data. The precision of medical care delivery is also improved by incorporating more sophisticated technologies in the healthcare system.

## **5. Earthquake detection**

We can check an earthquake early warning system by means of an IOT in WSN. The sensors are placed in the surface of the earth. When an earthquake occurs, both compression P wave and transverse S wave radiates outward the epicenter of the earth. The P wave, which travels fastest, trips the sensors, placed in the landscape. It causes early alert signals to be transfer ahead, giving humans and automated electronic system a warning to take precautionary actions.

## **6. Radiation detection/hazardous gas detection**

Harmful gas leakage accidents are the main reason for workers death in industries which work mainly using chemicals. Gas leakage can be easily detected and controlled by using latest trends in information technology by applying internet of things. This project intended to avoid industrial accidents and to monitor harmful gases and to intimate alert message to safety control board of industry using Arduino Uno R3 and internet of things. Arduinio Uno R3 board is used as central microcontroller which is connected with sensor. Such as temperature, gas sensor, alcohol sensor which can continuously monitor respective environmental parameters. Hence this device may be used as multi gases detection apparatus more over the rate of response is high.

## **7. Smartphone detection**

The smartphone-enabling technologies such as built-in sensors, Bluetooth, radio-frequency identification (RFID) tracking, and near-field communications (NFC) allow it to be an integral part of IoT and IoE world and the mostly used device in these environments. The smartphone-enabling technologies such as built-in sensors, Bluetooth, radio-frequency identification (RFID) tracking, and near-field communications (NFC) allow it to be an integral part of IoT and IoE world and the mostly used device in these environments.

## **8. Water flow monitoring**

A serious drop in ensuring the water quality in the distribution system is a factor that affects public health. This could lead to increase in biological and non-biological contents, change in colour and odour of the water. These contaminants cause a serious threat to the whole water ecosystem. The conventional methods of analyzing the water quality requires much time and labour. So there is a need to monitor and protect the water with a real time water quality monitoring system in order to make active measurements to reduce contamination. The growth of the technology had helped in developing efficient methods to solve many serious issues in real time. Internet of things (IoT) has achieved a great focus due to its faster processing and intelligence.

## 5. CONCLUSION:

IOT is used or applied in various areas like: Smart grids provide quality and appropriate electrical energy requirements. With the help of IoT, it is going to be much easier to handle traffic congestion with smart traffic signals that will help in better management of traffic control. Most smart home systems are controlled by smartphones and microcontrollers. A smartphone application is used to control and monitor home functions using wireless communication techniques. The use of wearables or sensors connected to patients, allows doctors to monitor a patient's condition outside the hospital and in real-time. Through continuously monitoring certain metrics and automatic alerts on their vital signs, the Internet of Things helps to improve the care for patients and the prevention of lethal events in high-risk patients. We can check an earthquake early warning system by means of an IOT in WSN. Gas leakage can be easily detected and controlled by using latest trends in information technology by applying internet of things. The smartphone-enabling technologies such as built-in sensors, Bluetooth, radio-frequency identification (RFID) tracking, and near-field communications (NFC) allow it to be an integral part of IoT and IoE world and the mostly used device in these environments.

## REFERENCES:

1. Zeinab Kamal Aldein Mohammed and Elmustafa Sayed Ali Ahmed, "Internet of Things Applications, Challenges and Related Future Technologies", World Scientific News, WSN 67(2) (2017) 126-148 EISSN 2392-2192.
2. Zainab H. Ali, Hesham A. Ali and Mahmoud M. Badawy, "Internet of Things (IoT): Definitions, Challenges and Recent Research Directions", International Journal of Computer Applications (0975 – 8887) Volume 128 – No.1, October 2015.
3. M.Sheik Dawood, M.Jehosheba Margaret, R.Devika, "Review on Applications of Internet of Things (IoT)", International Journal of Advanced Research in Computer Engineering & Technology (IJARCET) Volume 7, Issue 12, December 2018, ISSN: 2278 – 1323
4. Akanksha Bali, Mohita Raina and Simran Gupta, "STUDY OF VARIOUS APPLICATIONS OF INTERNET OF THINGS (IOT)", International Journal of Computer Engineering & Technology (IJCET) Volume 9, Issue 2, March-April 2018, pp. 39–50,

# PILLARS OF CORPORATE SOCIAL RESPONSIBILITY- STRATEGY FOR SUSTAINABLE DEVELOPMENT

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## 1. INTRODUCTION:

Corporate Social Responsibility (CSR) is well accepted among shareholders as well as with various other stakeholders of society in India. The term CSR is new normal for Indian organizations. CSR tends to focus on what is done with profits after they are made. Larger corporations understand that CSR is an integral part of business framework for sustainable development. Companies also consider that CSR is an approach towards sustainable development and focus on the triple bottom line of Economic, Environmental and Social performance.

In India, the term Corporate Social Responsibility (CSR) is widely being used even though related concepts and terms, such as business responsibility, sustainable development, philanthropy, sustainability, corporate citizenship, responsible business, triple bottom line, shared value, value creation, business ethics, socio-economic responsibility, bottom of pyramid, stakeholder management, corporate responsibility, and corporate social performance.

The CSR activities of Indian companies are in line with the provisions of Section 135 with Schedule VII to the Companies Act, 2013. The CSR initiatives of companies thrust on creating value in the lives of the communities around its areas of business and manufacturing operations.

CSR has become an effective tool to work in the line of Sustainable Development Goals (SDGs) with a strong focus on social performance indicated in the CSR projects of the organizations. The SDGs, otherwise known as the Global Goals, are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity.

Most of the businesses consider community as one of its apex stakeholders and believes in inclusive growth. This year most of the organizations continued its CSR initiatives in the realm of Education, Health, Livelihood, Rural Development and Social Entrepreneurship.

Organization's diverse projects and operations touch lives of people in many ways and create value by helping in overall and holistic development of communities within multiple geographies. Through its various initiatives, Companies endeavor to play a relevant role by serving communities and projects that address gaps in basic societal requirements.

Conscious business decisions by the Companies have directly and indirectly created value for multiple stakeholders and helped in improving lives of the people and species. Businesses in India believed in creating societal value by providing affordable products and services which have assisted in the growth of relevant and allied industries. Across all its areas of operations of Business, there are inherent linkages and interconnections with the immediate and long term societal impact.

Most of the business have a practice of reporting the CSR performance not only in Annual Report but also in dedicated Annual CSR Report and Sustainable Development Report. These reports are externally verified and are in accordance with the Global Reporting Initiative (GRI) guidelines and Business Responsibility Report, mandated by the law and competent authorities.

CSR initiatives are conceptualized and implemented through Corporate Foundations, Non-Government Organisation (NGOs) and Agencies and not-for-profit organisations. Most of the organisations worked on 4P model (Public-Private-People-Partnership) for empowering communities and stakeholders. Businesses have positively impacted lives particularly of several hundreds of thousand underprivileged people through various CSR activities and approaches.

It has been observed that for Indian Companies, Corporate Social Responsibility (CSR) is the commitment of businesses to contribute to sustainable economic development by working with the employees, their families, the local community, experts and the society at large to improve lives in ways that are good for business and for its development.

In the broad manner, CSR segment of the organisation is guided by the Board of Governance, Business DNA, CSR and Sustainability Mission of the Companies. In compliance with the provisions of Section 135 of the Companies Act, 2013 with the Companies (Corporate Social Responsibility Policy) Rules, 2014, Companies have taken measures and steps to ensure improvement and betterment.

Most of the businesses seek to continue its contribution to the society through its distinct value proposition that meets the needs of millions of people, enhancing their lives through education, healthcare, improving quality of living

by providing attitude, means and enabling livelihoods by creating employment opportunities through and for the Business, By the Business and Beyond the Business.

For the Business, value is being created for the society through business including employment generation, market growth and opportunity creation. By the Business- value is also being created through Corporate Social Responsibility (CSR) interventions across different operating facilities with appropriate linkages to local communities in which businesses operate and Beyond Business- value is being created through interventions for the societies in diverse geographies across India through creation of demand and services.

At public sector business organisations in India, CSR has been also looked upon as closely linked with the principle of sustainable economic development, which demand that organisations should make decisions and act based not only on financial factors but also on immediate and long term social and environmental consequences of their operations and activities.

Businesses in India have been sensitive towards the concerns of society and is committed to operating its core business in a socially responsible way by taking into consideration the wider interests of the community and the environment.

### **Seven pillars of CSR strategy**

1. Need of partnership in CSR
2. Cross learning
3. Supplementing and nurturing CSR
4. Per beneficiary cost reduction and maximizing the impact while reaching more people
5. Knowledge management and documentation
6. Use and reuse of resources for better CSR
7. Capacity building of the CSR workforce and re-skilling

### **2. NEED OF PARTNERSHIP IN CSR:**

Business organisations now recognise Corporate Social Responsibility (CSR) as a great opportunity to significantly strengthen their businesses – while building, strengthening and renewing human, social and natural resources and wealth. Finding the right kind of partners is absolutely important to the success of a CSR strategy. We are in connected world.

All issues are connected to the other issues, perspective and environment. Working alone is good but working together is great. Working alone yields lesser benefits as compared to the working together always. CSR world should explore togetherness by partnering with other entities. Togetherness in addressing the social and environmental issues is good for all. CSR world should encourage partnership to execute the mega social projects.

To fulfil the corporate social responsibility (CSR) goals businesses have to realise and act in partnership. Formation of partnerships has played a very significant role in progress and prosperity across the world. Partnership brings companies, businesses, people and society together and then pool their resources together in order to achieve the set goals. Partnerships is CSR is need of hour. Partnership opens doors for cross learning of knowledge and experiences.

#### **Cross learning in CSR**

Cross learning is key to CSR strategies. Learning improves performance and minimise risks. Effective partnership among likeminded organisations for CSR execution ensures cross learning in Corporate Social Responsibility. CSR leaders from different organisations must visit specific CSR locations of other organisation where CSR projects are being implemented and meanwhile they should meet the beneficiaries to gain new insights. CSR leaders must build a deep understanding of the socio-economic issues and they must be open enough to understand issues both from a business and a societal perspective. Learning from others in CSR can save time and resources. Concentrate on your CSR efforts but same time CSR leaders must learn from variety of successful CSR programmes. The greatest opportunities will come from areas where the business significantly interacts with society. Cross learning in CSR is immensely helpful in supplementing and nurturing CSR programme and projects.

#### **Supplementing and nurturing CSR**

Good CSR strategy and projects must be encouraged and supplemented. Opportunities for complementing and supplementing ongoing social projects and initiatives, programmes must be explored. Supplementing CSR emphasises on the sustainability of projects and programmes to ensure they remain relevant and viable even upon disengagement at the end of the project period. Every organisation explore possibilities for collaborating and co-operating with other corporations in order to synergise its efforts and increase both financial and social resources as well as outcomes and impact. Businesses may consider in supplementing even in smaller well defined CSR projects. Supplementing the CSR projects by the smaller or larger organisations matter in order to ensure optimal utilisation of the CSR budget and resources.

### **Per beneficiary cost reduction in CSR**

Per beneficiary cost reduction and maximizing the impact while reaching more beneficiaries in CSR is key to success. Business organisations have a variety of motives for being attentive to CSR and run a CSR projects. Leaders can increase impact and reduce costs when they understand the role of Corporate Social Performance (CSP) in driving CSR Performance (CP). Business should think of reaching more people by using less money and resources. Reduction in per beneficiary cost can be achieved by the partnership, collaboration, cross learning and reuse of resources.

### **Knowledge management and documentation**

CSR reporting practices strengthen organizations. The process of documenting and communicating CSR practices provides benefits to corporations, including the ability to formalize their position on CSR, identify organisational strengths and weaknesses, and manage stakeholder relationships and expectations. In India, any shortfall in spending in CSR shall be explained in the financial statements and the Board of Directors shall state the amount unspent and reasons for not spending that amount. As per the CSR Law, the CSR Committee of organisation shall institute a transparent monitoring mechanism for implementation of the CSR projects or programs or activities undertaken by the company.

Documentation, reporting and communication of the CSR performance is crucial to the CSR strategy. Documentation of the CSR must be organised and structured and should be accessible. Companies can explore the new way of documentation, reporting and communications.

### **3. USE AND REUSE OF RESOURCES FOR BETTER CSR:**

Effective use and reuse of resources can improve the CSR performance. Awareness on use and reuse of resources among across the stakeholders can help in achieving the desired goals of CSR sustainability. Sustainable CSR can be achieved through community and beneficiaries engagement. CSR is a process oriented task.

Recycling and reuse often are the easiest places to start. CSR leaders should take the essential steps to recycle the commonly recyclable materials, and look for easy opportunities to replace disposable or recyclable items with reusable ones. CSR leaders also should look for partners to help with more challenging to recycle or exotic materials, as well as for opportunities to introduce reusable packaging. And of course, look upstream to design new idea, services and programmes.

### **4. CAPACITY BUILDING OF THE CSR WORKFORCE AND RE-SKILLING**

In the fast changing world, capacity building of CSR workforce and re-skilling them are always relevant and are key to CSR performance. Human resource are fundamental requirement. CSR leaders must empower their subordinates by providing them right attitude, knowledge, information and trainings. Same time, CSR managers also be open to learn new things. Developing soft skill, professional skill, project management skill and leadership skill among CSR workforce is continuous process. Rigorous training, development and re-skilling of the CSR manners can save time, efforts and resources.

### **5. INNOVATIVE CSR**

Product innovation, process innovations and marketing innovations were the necessities of the modern competitive world. The next step on this block is innovative CSR. Innovative CSR not only attracts the attention of the consumer but also it creates a positive and strong image in the long run. By and large, corporations of the 21st century have come to realize that their obligations to societies in terms of CSR are fourfold: economic, ethical, altruistic and strategic. Meeting these four responsibilities is crucial to their survival in their various markets and industries; it also requires them to rewrite their previously less socially responsible business models in order to do so. All indications continue to suggest that it is those organisations that are perceived to be socially responsible by stakeholders in modern markets that survive and prosper. Corporations have equally realized that by being innovative in all things - including their CSR activities and initiatives - they will add value to the so-called bottom line, to the positive contributions they make to society and to how they are perceived by their key stakeholders. However, many criticisms have been made of CSR in its current form, often related to the lack of value that it generates within the enterprise and the fact that it offers only a partial and short-term response to the full challenges of sustainable development. The time has come to shift the CSR focus away from risk management towards a more progressive and entrepreneurial approach that seeks to create value and identify sustainable opportunities for strategic innovation.

### **6. SUSTAINABLE CSR INITIATIVES:**

Socially responsible sustainable innovations have been actively perceived by few handful organisations. There are two types of innovative mechanisms aspiring for a difference in social initiatives. CSR innovations can be designed internally as a part of corporate strategy and branding exercise. Multinationals and small scale companies have a practice

of engaging consultancies for creative CSR. Large scale companies can hire the services of management consultants or agencies in this area and it can be a long exercise. Large organisations can use internal resources including large pool of employees for their CSR exercises. For example at Infosys, Infosians are volunteering with various social initiatives in Infosys Foundation. Innovations can be possible from internal or external resources or by both. Most of the Indian companies engaged in the CSR activities are actively focusing on difference in approach. This orientation is leading to innovative CSR. There is a lot to learn from these innovative organisations and public sector organisations also need to craft different CSR strategies. CSR innovations can be related to companies' core competencies or core divergent affair. Companies like ITC are crafting innovation by exploiting their core competence by building on them. There are even smaller companies and newer companies which are trying to mark their entity with a creative social approach.

## 7. CONCLUSION:

Innovative CSR not only attracts the attention of the consumer but also it creates a positive and strong image in the long run. Cutthroat competition forcing, companies engaged in the CSR activities to actively focus on difference in approach. This orientation is leading to innovative CSR. After studying few sustainable CSR initiatives by the Indian corporates it can be said that there is a need to popularize the concept of CSR innovations to make them sustainable in long run. CSR is not only integral part of corporate strategy but also it should make a part of R&D strategy in the form R&D goals of the corporates. Public sector companies though have very strong CSR concepts, but budgets lack innovative CSR initiatives. In private sector also the number of CSR innovations is less however the economy and competition forcing the companies to make innovative CSR a must for companies. The companies should not only focus on the innovations in CSR but also should focus on the sustainability of such initiatives. Over a period of time a change taken place in the approach and attitude of the corporates in India. The CSR is not just a non business passive entity but it can be taken up as a proactive sustainable businesses paradigm. Change is a necessity and it is going to stay.

## REFERENCES:

- [1]. Achanta Ravi Prakash & Satyanaryana S.V , (2009) *Corporate Philantropy – a sectorial analysis of India*, Attidella Fondazione Giorgio Ronchi, LXIV,4,561
- [2]. Satyanarayana Ch (2007), "Social Accounting for CSR – A National and International Perspective", Journal of IEM, December, Lucknow
- [3]. <https://indiacr.in/corporate-social-responsibility-csr-in-india/>
- [4]. [www.thehindubusinessline.com/companies/article1468082.ece](http://www.thehindubusinessline.com/companies/article1468082.ece)
- [5]. <http://www.dealies.in/shoppers-stop/>
- [6]. <http://www.itcpspd.com/plantations/plantation.html>

## AN INVESTIGATION ON INSIDER THREAT TO CLOUD SECURITY

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### ABSTRACT:

*Insider Threat has been one of the greatest challenges in information security. It is always difficult to overcome this threat because it seems invisible to the traditional security measures like firewall, network based intrusion detection and prevention system etc., this traditional security measures typically focuses on threats and attacks outside the network boundary of the organisation. Cloud technology is a different type of technology, the basic aim behind cloud technology is to develop an ubiquitous environment .This technology is build on top of different technologies like networking, virtualization, distributed system the more the blend of different technologies is the more it triggers the need of professionals to manage, maintain and monitor these technologies .Thus the cloud technology due to its diversified and ubiquitous nature needs to be more cautious against the insiders threat .And as there are different categories and types of insiders involved in cloud environment analysing insiders threats in cloud environment needs a holistic approach to understand the different types of cloud insiders and their inherent roles.*

**Keywords:** Cloud, Cloud Computing, Insiders threat.

### 1. INTRODUCTION:

According to the report from Accenture and Ponemon Institute malware and rogue insiders incurred one-third of the cybercrime costs. Also Accenture's 2019 "Cost Of Cybercrime Study" found that the cybercrime costs due to insiders threat was four percent more than due to malware, they categorised these insiders into employees, temporary staff ,contractors and business partners.[1]. With Ponemon Institute's finding in their report "2020 Cost of Insider Threats: Global study. Sponsored by ObserveIT and IBM" they have given some jaw dropping figures that apparently clarifies the intense gravity of insider threat they state that the frequency of insider incidents per company has tripled from 1 to 3.2 since 2016 and on an average \$756,760 are suffered due to per incident by criminal and malicious insiders [2].

The above paragraph focuses on insider threat in general the remaining part of the paper investigates insider threat in context to cloud environment .Cloud environment has its own set of vulnerabilities which includes but is not limited to weak identity[3], credential, and access management[3]; insecure APIs[3]; insufficient due diligence[3]; lack of encryption[3]; malicious/clueless insiders[3] ;virtualization based vulnerabilities, hypervisor based vulnerabilities; vulnerabilities in cloud management environment ,softwares etc. This pulls the focus on insider threats in cloud environment. Also there are different types of cloud and each of these types of clouds offer different types of services.Hence with cloud environment we have quite a versatility of insiders. Thus a vivid approach towards these cloud insiders and the threats they can pose is the focus of this research paper.

The paper is divided into four sections the Section 1 is about cloud computing, Section 2 is on the different types of cloud insiders, Section 3 is on the damage these insiders can bring and Section 4 contains the conclusion part.

### 2. SECTION I. CLOUD COMPUTING:

According to NIST September 2011,

"Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction."[4]

The above definition introduces cloud computing as a model which comprises of different hardware and software resources through which services are provided the definition also drives attention towards certain characteristics of cloud services like ubiquitous, convenient and accessible as per requirement

There are different ways in which this cloud model can be deployed:-

#### Public Cloud:

Public clouds is the most well known type of cloud computing. These clouds can be visualised as the one that offers and avail IAAS, PAAS, SAAS to general masses irrespective of consumer's location and also anytime through the Internet. The architecture of this cloud is comparatively big since it is developed by the cloud provider to rent their services to general public across the globe they are generally in the form of distributed system which mostly is made

up of multiple datacenters connected together. These data centers are geographically dispersed to cater to the incoming load and needs of consumers as per their locations. Most of the public cloud providers provides a web based interface if a consumer wants to register, deregister or access the services through public cloud then they can visit this web interface.

#### **Private Cloud:**

With private cloud which looks similar as public work the resource-provisioning model is limited within the dimensions of organization[5]. A private cloud is generally built by and for a single organization and is mostly accessible on intranet. Hence the management and access of this type of cloud is within the control of its owner and in many cases their partners.[6,7] It is generally not meant to sell services to general masses through internet and gain benefit out of it but on the contrary it is meant to run organisation's own business processes and services.

#### **Hybrid Cloud:**

Hybrid clouds is a combination of all the benefits of both public and private clouds and existing architecture in a data center. It is also described as a blend of services like computing, storage made up of on-premises infrastructure, private cloud services, and a public cloud with orchestration among the various platforms. Using this mixture of public clouds, on-premises computing, and private clouds in your data center means that you have a hybrid cloud infrastructure.

#### **Services Offered by Cloud:**

##### **Software-As-A-Service(SAAS)**

Software as a service (SaaS /saas/) (also known as subscribeware or rentware) is a software licensing and delivery model in which software is licensed on a subscription basis and is centrally hosted. It is sometimes referred to as "on-demand software" and was formerly referred to as "software plus services" by Microsoft.[8]

##### **Platform-as-a-Service (PaaS):-**

Platform-as-a-Service(PaaS) as the name suggests allow the cloud consumers to develop ,execute,manage and administer their own cloud applications or solutions by providing a development and deployment platform. They constitute the middleware on top of which applications are built[5].

##### **Infrastructure-As-A-Service (IAAS)**

Infrastructure as a service (IaaS) is infrastructure hosted in the cloud. IaaS includes virtual servers and cloud storage, cloud security, and access to data center resources (managed by the IaaS provider).[9].IaaS are online services that provide high-level APIs used to dereference various low-level details of underlying network infrastructure like physical computing resources, location, data partitioning, scaling, security, backup etc. A hypervisor, such as Xen, Oracle VirtualBox, Oracle VM, KVM, VMware ESX/ESXi, or Hyper-V, LXD, runs the virtual machines as guests. Pools of hypervisors within the cloud operational system can support large numbers of virtual machines and the ability to scale services up and down according to customers' varying requirements.[11]

#### **Section II. Cloud Insiders :**

Kandias et.al, divides cloud insiders into two types:- 1) Insider threat in the cloud provider: -Where the insider is a malicious employee working for the cloud provider, [12] and (2). Insider threat in the cloud outsourcer: The insider is an employee of an organization which has outsourced part or whole of its infrastructure on the cloud.[12].

Claycomb et.al, enlists three types of cloud-related insider threats 1) the rogue cloud provider administrator 2)the employee in the victim organization and 3) the insider who uses cloud resources to carry out attacks against the company's local IT infrastructure. [13]

The classification given by Kandias et.al, looks worth if the cloud in concern is a public cloud or hybrid cloud but with private cloud the cloud provider and the cloud consumer are generally the same organisation therefore with respect to private cloud this hierarchy of cloud insiders may differs .Claycomb et al.; on the other hand goes with a very specific approach and classifies the 3 types of cloud insiders .Considering the above two approaches they lack categorizing the cloud insiders based on cloud types,inorder to gain a more in-depth analysis of cloud insiders we can actually classify them depending on the different cloud deployment models

### **3. CLOUD INSIDERS IN PUBLIC CLOUD:**

Following Kandias et.al we can classify cloud insiders in public cloud:-

- 1) Insider threat in cloud provider side[12]:-
  - a)Cloud Administrators
  - b) Cloud Computer Systems Administrator [10]

- c) Cloud Network Administrator [10]
- d) Cloud Engineer [14]
- e) Cloud Product Manager [10]
- f) Cloud Software Engineer [14]
- g) Cloud Sales Manager [10]
- h) Cloud Developer [14]

2) Insider threat in cloud consumer side:-

- a) Cloud Administrator at the consumer side
- b) Employees given access to the cloud resources to perform their jobs

3) Insider threat in cloud broker side:-

- a) Cloud Consultant [14]

**Cloud Insiders in Private Cloud:**

- 1) Cloud Computer Systems and Network Administrator (CCSNA) [10]
- 2) Cloud Engineer [10]
- 3) Cloud Software Engineer [14]
- 4) Cloud Developer [14]
- 5) Employees given access to private cloud resources to perform their jobs

**Cloud insiders in the hybrid cloud** depends on how the hybrid cloud is crafted based on that it can have any combination of the above mentioned cloud insiders.

**Section III Damage These Cloud Insiders Can Cause:-**

Different types of cloud administrators enlisted above can cause different types of damage by initiating different types of attacks as suitable to their job profile. Based on the above cloud insiders the following table enlists the possible attacks they can make

Cloud Insider Type	Attacks
Cloud Administrators	Implanting malware, data exfiltration, data breaches, misconfiguring management softwares, misconfiguring hardware and software resources, hypervisors, damaging cloud APIs, denial of service attack etc
Cloud Computer System Administrators	Misconfiguring the system resources, malware injection in the system, sabotage attack, bricking system resources making it unavailable, spreading malware to other connected systems
Cloud Network Administrators	Implanting malware like worms to obstruct the cloud network, sniffing data flow, authentication credentials theft and spoofing, misconfiguring the transmission media, routers gateways and other networking resources misconfiguring network security devices like firewall, intrusion detection and prevention system, sabotage
Cloud Engineer	Damaging the data centre server, storage and networking resources, obstructing the data centre facilities, leaking the cloud and data centre designs, information about cloud services, obstructing the deployment of cloud services
Cloud Product Manager	Leaking the plans, models, designs, concepts of present and future cloud services to the providers contemporaries
Cloud Software Engineer	Leaking the conceptual model and designs of SAAS and PAAS, malicious testing of cloud software services and platforms
Cloud Sales Manager	Leaking the sales figures and marketing strategies
Cloud Developer	Exfiltration of GUI designs, code-behind, damaging the developing tools and APIs, malicious unit testing of cloud software services and platforms
Cloud Consultant	Maliciously leaking the details of collaborations between the cloud provider and consumer teams
Employees using cloud resources	Abusive usage of cloud resources

Table 3.1 Cloud Insiders and their attacks

#### 4. CONCLUSION:

The above research aims to highlight the different types of cloud insiders and the potential attacks they can make. By analysing the different types of attacks which can be posed by the different cloud insiders the most dangerous insider is apparently the cloud administrator who generally has the bunch of keys to access different cloud resources in his/her hand and enjoys highly privileged authorities making the possibility quite certain that they can make the attack in a stealthy manner gradually without causing much stains to their hands and though being rogue keeping their collar as white as snow

#### REFERENCES:

- [1] <https://newsroom.accenture.com/news/malware-and-malicious-insiders-accounted-for-one-third-of-all-cybercrime-costs-last-year-according-to-report-from-accenture-and-ponemon-institute.htm>
- [2] <https://www.ibm.com/downloads/cas/LOZ4RONE>
- [3] <https://www.synopsys.com/blogs/software-security/insider-threats-cloud/>
- [4] <https://www.nist.gov/news-events/news/2011/10/final-version-nist-cloud-computing-definition-published#:~:text=According%20to%20the%20official%20NIST,and%20released%20with%20minimal%20management>
- [5] Mastering cloud computing by Rajkumar Buyya, Christain Vecchiola, S Thamarai Selvi
- [6] Distributed and cloud computing by Kai Hwang, Geoffrey Fox Jack Dongarra
- [7] Cloud Computing concepts technology and architecture by Thomas Erl, Zaigham Mahmood and Ricardo Puttini
- [8] [https://en.wikipedia.org/wiki/Software\\_as\\_a\\_service](https://en.wikipedia.org/wiki/Software_as_a_service)
- [9] [https://en.wikipedia.org/wiki/Infrastructure\\_as\\_a\\_service](https://en.wikipedia.org/wiki/Infrastructure_as_a_service)
- [10] <https://www.analyticsinsight.net/5-most-in-demand-job-roles-in-cloud-computing/>
- [11] <https://www.cloudflare.com/learning/cloud/what-is-iaas/>
- [12] Kandias, Miltiadis, Nikos Virvilis, and Dimitris Gritzalis. "The insider threat in cloud computing." International Workshop on Critical Information Infrastructures Security. Springer, Berlin, Heidelberg, 2011.
- [13] Claycomb, William R., and Alex Nicoll. "Insider threats to cloud computing: Directions for new research challenges." 2012 IEEE 36th Annual Computer Software and Applications Conference. IEEE, 2012.
- [14] <https://www.networkworld.com/article/2160144/top-10-cloud-related-job-titles.html>
- [15] Sundararajan, Sudharsan, et al. "Preventing Insider attacks in the Cloud." International Conference on Advances in Computing and Communications. Springer, Berlin, Heidelberg, 2011.
- [16] Stolfo, Salvatore J., Malek Ben Salem, and Angelos D. Keromytis. "Fog computing: Mitigating insider data theft attacks in the cloud." 2012 IEEE symposium on security and privacy workshops. IEEE, 2012. Mahajan, Atulay, and Sangeeta Sharma. "The malicious insiders threat in the cloud." International Journal of Engineering Research and General Science 3.2 (2015): 245-256.
- [17] Kandias, Miltiadis, Nikos Virvilis, and Dimitris Gritzalis. "The insider threat in cloud computing." International Workshop on Critical Information Infrastructures Security. Springer, Berlin, Heidelberg, 2011.
- [18] Duncan, Adrian J., Sadie Creese, and Michael Goldsmith. "Insider attacks in cloud computing." 2012 IEEE 11th international conference on trust, security and privacy in computing and communications. IEEE, 2012.
- [19] Claycomb, William R., and Alex Nicoll. "Insider threats to cloud computing: Directions for new research challenges." 2012 IEEE 36th Annual Computer Software and Applications Conference. IEEE, 2012.
- [20] <https://aws.amazon.com/what-is-cloud-storage/>
- [21] <https://www.techopedia.com/definition/26535/cloud-storage>
- [22] [https://en.wikipedia.org/wiki/Cloud\\_storage](https://en.wikipedia.org/wiki/Cloud_storage)
- [23] <https://www.investopedia.com/terms/c/cloud-storage.asp>
- [24] <https://www.allbusiness.com/cloud-storage-business-21059-1.html>
- [25] <https://nordic-backup.com/blog/public-vs-private-vs-hybrid-cloud-storage-for-businesses/>
- [26] <https://info.acloud.guru/resources/the-basic-advantages-of-public-cloud>
- [27] <https://vexxhost.com/blog/cloud-security-private-vs-public/>

# A BRIEF INTRODUCTION TO WIRELESS SENSOR NETWORK TECHNOLOGY

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## **ABSTRACT:**

*As remote sensor technology improves; an expanding number of associations are utilizing it for a wide scope of purposes. ZigBee technology is another norm in remote individual garea after Bluetooth. After a presentation to this technology, another remote meter-perusing framework based on ZigBee protocol has advanced. This framework, which is contained ZigBee organization and information base administration framework, has numerous significant focal points, for example, minimal effort, low power utilization, and low data rate. Remote Sensor Organization dependent on ZigBee technology is a remote organization which is made out of numerous hubs of ZigBee RF chip, sensor furthermore, MCU, particularly reasonable for utilization of the far off observing framework in combustible and unstable climate. Combination of RFID and Zigbee is likewise conceivable which go out to be help for remote sensor network technology. A total outline of remote sensor network technology is given in this paper. Remote sensor network technology has gotten one of mechanical essential requirements of us.*

## **1. INTRODUCTION:**

With the advancement of organization and correspondence technology, the bother of wiring is comprehended with WSN into individuals' life; particularly it has wide point of view also, practicability in the region of far off detecting, mechanical mechanization control, and homegrown machine, etc. WSN has great elements of information assortment, transmission, also, handling. It has numerous favorable circumstances contrasted with conventional wired organization, for instance, advantageous coordinating organization, little impact to climate, low power dissemination, ease, and so forth As of now, close to field remote correspondence technology has been utilized widely, especially Bluetooth, wireless local area network (WLAN), infrared, and so on In any case, they have various weaknesses, for model, intricacy, huge force dispersal, short distance, networking in little scope. To fulfill the interest of low force dispersal and low speed among remote specialized gadgets, another kind of remote net technology-Zigbee arises as the occasions require. In this paper, we will present the networking technology and utilization of Zigbee. How Zigbee and RFID blend can be utilized in applications. In this paper first Zigbee is clarified, at that point its preferences application lastly its combination with RFID alongside applications is talked about.

## **ZigBee Technology**

ZigBee is new remote correspondence technology with short distance, low unpredictability, low energy utilization, slow information rate and ease, and it depends on IEEE 802. 15.4 Standard with the limit of organizing shared correspondence among a huge number of minuscule sensors. Through the radio waves, these sensors can send the information starting with one sensor then onto the next with little energy cost and high effectiveness. Contrasted and different existing remote correspondence technology, ZigBee technology has the least energy utilization and cost. Due to the moderate information rate and the little scope of correspondence, ZigBee technology is amazingly appropriate for rural field which has limited quantity of information streams. The specialized highlights of this technology additionally settle on it the most ideal decision for remote sensor organizations. In this way, it has the down to earth hugeness at the point when applied in the yield natural observing framework. ZigBee has the accompanying highlights. ZigBee utilizes an assortment of intensity sparing modes to ensure that it very well may be utilized for at any rate a half year to two years controlled by two AA batteries. ZigBee utilizes the shirking impact instrument in CSMA/CA and pre-set an earlier specific time allotment for a fixed transfer speed interchanges administration to dodge rivalry and strife when sending information. Macintosh layer receives a completely affirmed information transport component, and every parcel sent by the recipient should sit tight for affirmation. Zigbee makes them sort out highlights that one hub can sense different ones with no human mediations, and associate with one another consequently to make a finished network. It additionally acquires self-recuperation work that the organization can fix itself when a hub is added or erased, the situation of a hub is changed, or a breakdown happened. It additionally can change the geography structure to guarantee that the entire framework can work regularly with no human intercessions.

## **2. FUNDAMENTAL NETWORK STRUCTURES:**

Zigbee upholds various organization structures, which essentially incorporate star, tree, and lattice organization, appeared in Fig.1. They are made out of the Coordinator, the switch, and the end gadget. The Coordinator and the switch

need full function (FFD), yet the end gadget could choose either full work gadget (FFD) or reduced function device (RFD). RFD is simply used to obtain information data and send the data to its parent hub; it isn't utilized to complete the work, for example, information transmission, course revelation, and course upkeep. The obligation of RFD is utilized for building another organization, sending network guide, overseeing hubs in the organization, and putting away organization data, and so on Star network is made out of a Coordinator what's more, an end gadget or various end gadgets, the end gadget could just speak with Coordinator, it can't speak with end gadget, so star network is called single-bounce organization. The tree organization and cross section organization have directing capacity, so they are called multi-bounce organization.

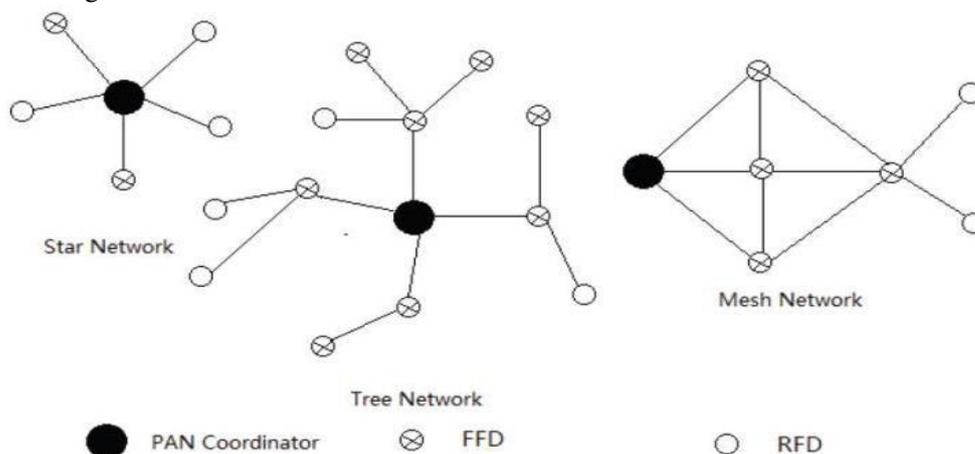


Fig. 1. The architecture of Zigbee network.

**ZigBee Protocol Suite**

ZigBee standard uses progressively organized. ZigBee doesn't actually fit the OSI 7-layer networking model, yet it has a portion of similar components, including the PHY (physical), MAC (interface layer), and NWK (network) layers. The Alliance centers around the particular of the upper layers of the protocol stack (from organization to the application layer), as the IEEE 802.15.4 protocol determines the Medium Access Control (MAC) sub-layer and actual layer for LRWPAN. Fig. 2 shows the casing structure received by the partnership.

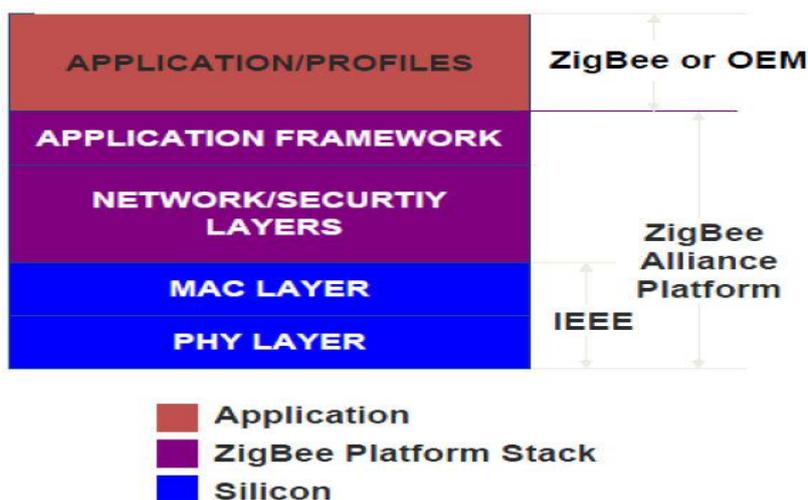


Fig. 2. IEEE820.15.4/ZigBee protocol stack architecture

**Touchy Production Environment Remote**

Checking SYSTEM ARCHITECTURE Framework structure appeared in Fig. 3, the whole framework by checking the host, GPRS module (or, a ZigBee organizer hub, various ZigBee switches, ZigBee hub also, various hubs of terminal hardware. This is a group tree network structure is helpful for the quantity of network hubs and the actual extension of the degree, complex, multi-hub remote organization correspondence framework is likewise a significant reference esteem. Fig. 3 Structure of the structure of far off checking framework. The coordination of the organization hubs, network the executives capacities, the getting terminal gadget hub for the information transfer, and move through the GPRS organization to the observing focus. Switch hubs for steering of data, communicated, permitting different hubs join the organization. Hub gadget to the organization facilitator every once in a while gather data to send and get

orders from the observing host. ZigBee module utilized for GPRS networks what's more, Internet organizations, the Internet (additionally accessible in other ways), the acknowledgment of ZigBee network information to screen the transfer and download the host orders. Host ongoing checking of the assortment, stockpiling, observing and handling hardware from a far off terminal hubs of data, and can overwhelm the police whenever, for example, setting boundaries for the creation climate to accomplish successful observing and the executives, its capacities are isolated into two significant parts, Data Monitoring: to get from the ZigBee network data gathered, the relating information into the information base; to get guidelines from the directors, and order outline design in understanding with the arrangement orders, GPRS module through the order gave to the ZigBee network furthermore, do the action. Information Management: The information base can be discovered, inquiry information from the current ZigBee network data, for example, the creation of the encompassing temperature, pressure, invaded alert, for example, the pinnacle that is all. ZigBee end-hub utilizing a periodic reminder occasionally work, time to awaken from hibernation to start information procurement, ZigBee steering hub to send a message, send finished and afterward enter hibernation. ZigBee directing hubs will gather the information shipped off the ZigBee organizer hub, door GPRS module through the information transferred to the distant observing focus.

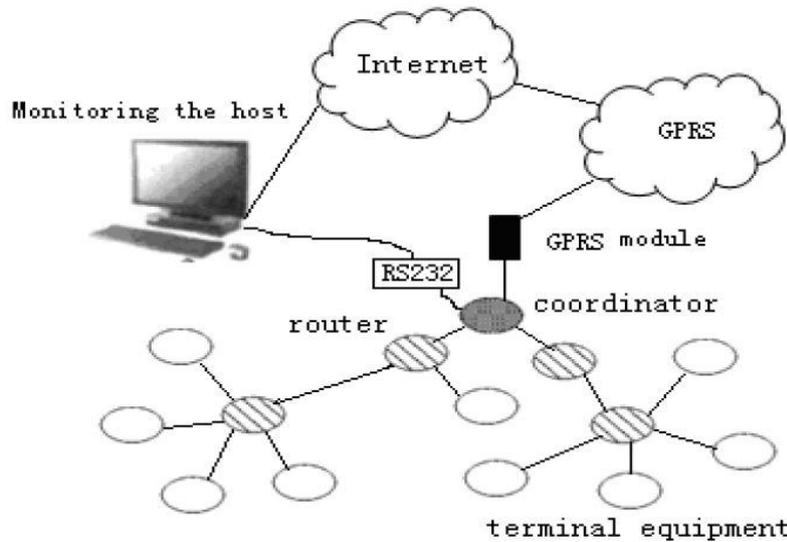


Fig. 3. Structure of the framework of remote monitoring system.

**The Fusion of RFID & ZigBee**

RFID is a non-contact programmed ID technology that utilizes radio recurrence signals programmed perceives target and admittance to important information. The ID work doesn't need human impedance and can work in assortment of brutal conditions. In any case, if there is no organization to send information, it will be hard to play its advantage. Affected by natural conditions, the conventional wired organization may not be a superior method to accomplish. The element of remote sensor network is no middle also, self-put together, it is a ground-breaking supplement of RFID, and can comprehend the downside of helpless enemy of obstruction, the successful transmission distance short. In view of the ZigBee technology and the RFID technology of data combination technology: the previous used to screen the objective climate conditions, the last used to recognize target objects. Corresponding and related of the technology can adequately take care of the issue of RFID information send in the mine and can likewise better see the wellbeing danger exists in coal mineshaft.

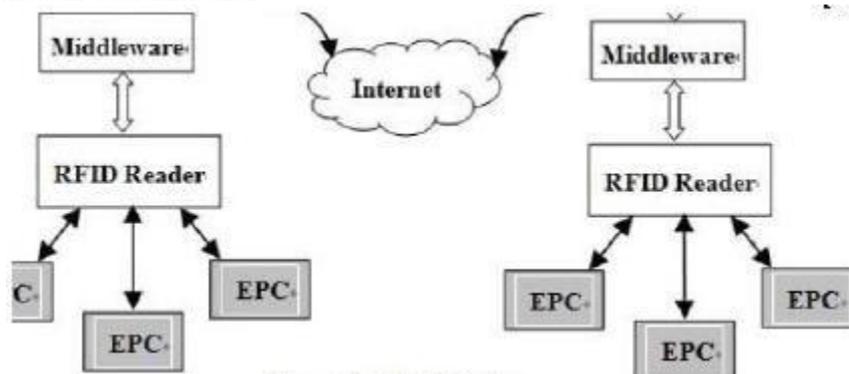


Fig. 4. The fusion technology of wsn and RFID

A. Base on the Integration of WSN and RFID Technology to Solve the Problem of Mine Safe The blend of ZigBee remote sensor organizations and RFID technology, compensate for the disadvantage of short transmission distance of the RFID which can likewise settle a portion of the accompanying issues.

1) RFID information transmission issue: GIS and RFID to accomplish the different wiring issue of faculty area under the customary way; Because of geological multifaceted nature of the mine, terrible climate, wired associations will cause the information course in the mine perplexing and excess and information lines will be affected by helpless conditions to spoiled skin, breaking prompting information move unsteadiness and compelling information are gathered absolutely to guarantee faculty wellbeing of significant security; depending on remote sensor organizations to communicate information, security, high unwavering quality and disposing of the requirement for isolated wiring issues, lessening input costs.

2) Personnel situating issue: The blend of RFID technology and GIS, can unravel dependent on ZigBee technology the faculty situating error of the issue; Under the ZigBee technology to figure it out work force situating mode, Personnel to wear the situating of a ZigBee module which routinely sent the existed data, the sensor hub which conveyed in mine street to get this sign, as indicated by signal solidarity to decide its area; At the point when the mine passage hindrance is more prominent, the existed signal constriction happens during transmission, recognition precision of sensor hubs will be decreased or indeed, even fall flat. What's more, when the organization transmission joins because of the breaking down of a hub disappointment, the information won't arrive at the ground control focus. Utilizing RFID technology, Anti-contamination highlights of the electronic tag and the peruser transmission and the diffraction work, to limit the natural effect of topography; with GIS examination of the encompassing climate, really exact work force situating. Furthermore, at the point when the mine mishaps happen, RFID label will bring help to protect; utilization of handheld gadgets that have directed the area of offices, staff side edge recognition salvage, help to improve significantly.

3) Under the mine the individual security of staff issue: Implantation of garments in the remote information recipient can be acknowledged well into the twofold security of work force; it separated from the beginning community gotten an admonition message sent over notwithstanding the self-rule of the accepting sensor hub discovery information; at the point when the information transmission isn't strength or disappointment of information interface control focus to send the right information can't be reached, it actually can be accomplished well into the wellbeing of the work force on alarm.

## Utilizations OF WSN

Zigbee remote correspondence technology has wide viewpoint, Zigbee will be utilized in a few years in the zone of industry control, modern remote area, home network, building computerization, clinical hardware control, mine security, and so forth, particularly home mechanization and industry control will be the principle application fields. Zigbee remote correspondence is applied in families. With the turn of events of individuals' life, the idea of keen home a lot robotization is notable, yet it should identify with the transmission of data and sign on the off chance that it works out as expected, so it is irksome to wire links. Zigbee is another short-range technology for remote correspondence, it is uncommonly intended for utilizations of remote correspondence of low speed and low force scattering, and it is obviously appropriate for building up family remote net. It is easy to figure it out home temperature guideline, controller of inside lighting frameworks, and programmed change of shade. Zigbee remote correspondence technology is applied in meter perusing framework in the checking focus simply needs to dissect and figure information gained from clients and acquire power utilization of clients. From that point forward, electric charge of the month is deducted from power record of clients, the laborers who is obliged to peruse the meter in client's home, what clients are not at home when laborers are to peruse the meter is avoided. Contrasted with working practically for laborers, it is the most critical to be utilized in wellbeing. presents a test home security checking and disturbing framework dependent on Zigbee technology, it is fit for observing entryway and window attractive contact, smoke, gas spill, water flooding, giving straightforward controls, for example, killing the valves, and sending the cautions to the neighborhood security organization, and so on Zigbee remote correspondence technology is applied in plants or endeavors. It is applied in data framework of coal arrangement ventures in, a wide range of drawbacks of conventional link network framework are evaded by coal arrangement ventures, it exceptionally improves the degree of data programmed, computerization, and management. Zigbee remote correspondence technology is applied in ARM NC framework network in Experimental outcomes appeared that the improved strategy can ensure the preparing proficiency of NC framework with fulfilled exactness and information transmission speed. Focusing on substation edge security, a novel laser alert framework dependent on Zigbee is proposed in. It comprises of laser railing security subsystem and information focal observing subsystem, the correspondence between the two subsystems is acknowledged by Zigbee remote technology, a constant human-machine interface can be accommodated specialist. Zigbee remote correspondence is applied in mine. Targeting improving security of creation and staff wellbeing, Zigbee technology is applied in the Miner's Lamp Observing in. This framework can understand underground staff direction and accomplish observing and control of the state of charge on

the digger's light, and the high viable control what's more, the board on utilization of excavator's light. Using the underground existing net and the augmentation Zigbee hubs, the framework likewise can be all the more handily expanded the moistness, gas and different sensors, to accomplish mine ecological observing, guarantee security underway, the improved technique has been investigated in Zigbee has been generally utilized in numerous regions because of the upside of low force utilization and minimal effort, it is useful for wide-scale application. In any case, there are a few issues now, the facilitator convey an excessive amount of hubs, particularly in the enormous scale remote sensor organization, it is important to bring about awful continuous, information parcel misfortune, and steadiness decline; likewise, there are a few spots where it is hard for people to change the batteries of hubs, or there is a genuinely huge number of hubs which is inconvenient to change presents an improved plan, the facilitator just arrangement with the errand on the Zigbee network, the rest errands will be handled by another processor. Dragging out the lifetime of the Zigbee network is the significant objective of planning the Zigbee steering protocol. An energy-mindful steering component EA-AODV is introduced in it can spare energy and improve the execution of Zigbee network. Zigbee remote correspondence technology is applied in holder Data framework in the paper presents the system of networking and steering to keep energy load adjusting between network hubs, delayed the lifetime of hub and organization successfully. It is exceptionally important to research these regards. ZigBee technology is another standard in remote individual territory after Bluetooth. After an prologue to this technology, another remote meterreading framework dependent on ZigBee protocol is conceivable. This framework, which is contained ZigBee organization and information base the executives framework, has numerous significant favorable circumstances such as ease, low force utilization, and low data rate.

### 3. CONCLUSION:

As another remote protocol in close to home territory, ZigBee has its one of a kind qualities including minimal effort, low information rate, also, low force utilization which relates to an enormous market. This paper gives an application in the field of building computerization. The combination of two arising advancements - WSN and RFID that can give full play to the focal points of the two innovations supplement one another. It gives more dependable strategy security on the coal mine ecological observing and has incredible criticalness in China Mine safety. In this paper remote sensor organization technology is discussed alongside application and it is clear that WSN ends up being arising technology.

### REFERENCES:

1. D. Cox, E. Jovanov, and A. Milenkovic, "Time synchronization for ZigBee networks," in Proc. of the Thirty-Seventh Southeastern Symposium, System Theory, pp. 135-138, 2005.
2. Wireless Medium Access Control (MAC) and Physical Layer Specifications for Low Rate Wireless Personal Area Networks (LRWPANS), IEEE standard for Information Technology-Part 802.15.4-2003.
3. Wireless Medium Access Control (MAC) and Physical Layer (PHY) Specifications for Low-Rate Wireless Personal Area Networks (LRWPANS), IEEE Standards 802.15.4TM-2003.
4. Wireless Medium Access Control (MAC) and Physical Layer (PHY) specifications for low Rate Wireless Personal Area Networks (LR - WPANS), IEEE 802. 15. 4.
5. W. LI, et al, Introductory and actual combat of Zigbee wireless networks, Beijing University of Aeronautics And Astronautics Press, April 2007.
6. Zigbee Specification, Zigbee Alliance, June, 2005.
7. J. Shen and L. Hao, Zigbee MCU Principal and Application based on STM32W Radio Frequency, Beijing University of Aeronautics And Astronautics Press, September 2010.
8. W. Zhang, L. Feng, and Z. Wen, "Research on home networking with Zigbee," Journal of Hefei University of Technology, vol. 28, pp. 755-759, 2005.
9. Wireless Sensor Network Technology by Aamir Shaikh and Siraj Pathan
10. Y. Wang and G. Shen, "Zigbee Wireless Sensor Network Technology and Application," Ship Electronic Engineering, 10th ed, vol. 28, pp.32-34, 2008.
11. Y. PENG, LI Yingli et al, "Method for Saving Energy in Zigbee Network," WiCom' 09. 5th International Conference on, pp. 1-3, 2009.

# AN OVERVIEW OF SENSOR TECHNOLOGY & ADOPTION OF SENSOR TECHNOLOGY IN INDUSTRIES

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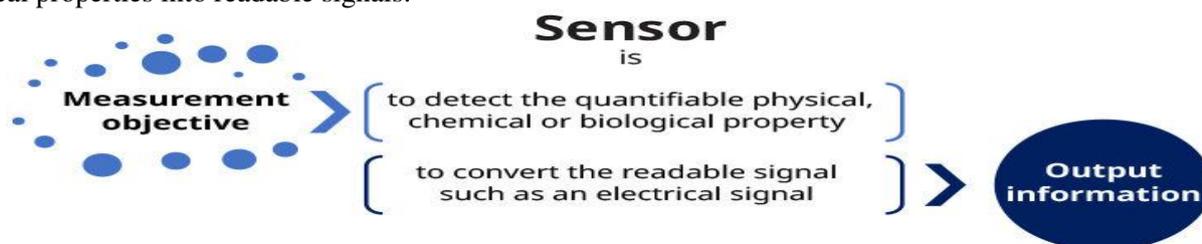
## 1. INTRODUCTION:

In the modern industry, volatility, confusion, complexity and ambiguity have never before been the standard. Operational efficiency has therefore become increasingly important, with lower costs and greater protection for both properties and staff. In this regard, sensing technology and innovation have played a key role in sustaining productivity and efficiency for industrial operations.

Sensing technology and its diverse applications are developing continuously in line with technical and business needs developments. A variety of real-world properties – from distance to heat to pressure – can be sensed with sensors. Today's products feel all around them with sensors, which have the potential to be highly precise, to use less power and to instal and maintain cheaply. Sensors prove crucial to the development of new value for their respective processes and companies.

## 2. WHAT IS SENSING TECHNOLOGY? HOW IS IT RELEVANT TO SENSORS?

There are several types of Sensors, but essentially the sensors are instruments that sense the measuring object's feature quantity and translate it into a readable signal that is displayed on an instrument. In short, sensor technology is a technology that uses sensors to obtain information by detecting and converting the sum of physical, chemical or biological properties into readable signals.



For almost every industrial requirement, there are a large number of sensors available. Sensors can help optimise processes and provide unrivalled asset security for challenging, mission critical industrial applications.

These sensors provide real-time monitoring and reporting, if necessary, by a process. The monitoring and sensor collection data is forwarded for monitoring and analysis and the electrical signal emitted by that sensor is reporting some abnormality in a particular property. This increases the productivity of the process and the quality of the product, while ensuring that processes obey best practises.

## 3. UNDERSTANDING SENSORS - AN ANALOGY:

Most of the material or device is a sensor that can sense a non-tangible, abstract or physical property. We are surrounded by sensors and sensors measure and detect several processes that operate effectively around us.



Indeed the human body relies on the five sensory organs – eye, ear, nose, tongue and skin for its proper functioning. It is clear that the functioning of human senses (sensory organs) takes the information about the outside and transmits it to the brain for processing. Then the brain guides the body into further action. As a result, it is critically important that the sensory bodies work properly for the body's protection and well-being.

#### 4. HUMAN SENSES AND MACHINE SENSATIONS:

Over the years, we have established an abundance of specialist sensors which can detect a range of physical or chemical properties.

- ❖ Physical sensors that play a role in the vision, hearing, touching, sensing and transformation into electric signals of physical amounts like light, sound waves, pressure and temperature.
- ❖ The role of taste and smell is played by chemical sensors. The electrical signals are transformed and detected based on the presence, concentration and structure of different chemicals.
- ❖ Biological sensors are considered a component of chemical sensors, but detect states or substances that emit electrical and optical signals using biological properties.
- ❖ There are sensor sensors with high sensitivity to detect magnetism and the radiation exposure that the human senses cannot detect.

Sensors play the same vital function as sensory organs in the human body in industrial applications. The process industries have a cluster of machines or systems and interconnected devices that are heavily dependent on sensors to work properly. Sensors, which are networked into their process flow, sense, calculate and relay electrical signals in order to change their physical environment continuously. The electrical signals are transmitted to a control device (computer), processing the data and continuously directing the operation. The process flow and control equipment have also developed with the continuous growth of society. Today's computers are now supplied with a wide variety of highly sensitive human interfaces to track and manage. Sensing technology is so automated that it is able to pick and continue human wishes and intentions. Much like the sensory organs of the human body perform different roles and are a vital part of life, the sensors play the same role in processing by testing the different process parameters for continuous functioning.

#### 5. USAGE IN INDUSTRIAL APPLICATION:

Industrial processes are basically physical, chemical, electrical or mechanical steps to produce a product. Highly developed process industries have processes that are well defined and documented. In order to prevent unexpected changes in components and unpredictable production conditions, it is important that each production process is constantly measured and accurately tested. It is also necessary for the success of a process, by monitoring the condition of production equipment and power plants and performing optimum maintenance management, to optimise the efficiency of underlying equipment. This is why industrial process monitoring and asset monitoring sensors and instruments are developed.

#### PROCESS MONITORING

Process monitoring sensors are used for product and process status monitoring in an installation. These sensors are located in the manufacturing process and constantly detect the measuring state and forward it as process data to control units. The control units then equate the transmitted signal to the target value and then translate the difference into a controlled variable. The "feedback control" is repeated to hold the monitor entity in a stable and controlled state. By repeating this loop.

These sensors need continuous feed and high-speed response in real-time. These accurate sensors perfect processes in real time for blind spots elimination, high-quality production and optimum operation of the factory.

#### ASSET MONITORING

In monitoring the equipment in a factory, asset monitoring sensors play an important role. Analysis and warnings are focused on the data they collect and distribute. The health of plant equipment can be diagnosed by analysing sensor output data. Then this diagnosis is used for alarm control, predictive equipment repair and better maintenance patrols. Sensors that respond highly can help avoid plant injuries, enhance the operating process and increase equipment lifetime.



For almost every process a broad range of sensors and sensing systems is available. To achieve some degree of process control it is important to be able to collect reliable and accurate data. In addition, if detected and documented incorrectly, process plants may use the latest control or cloud-based data collection techniques. Today's sensing systems are a comprehensive framework that ensures that they act as a unit for optimum process and asset management and finally efficient processes. These sensor units are used in a wide range of process Automation industries since data detection is a very important first step to success in any process industry.

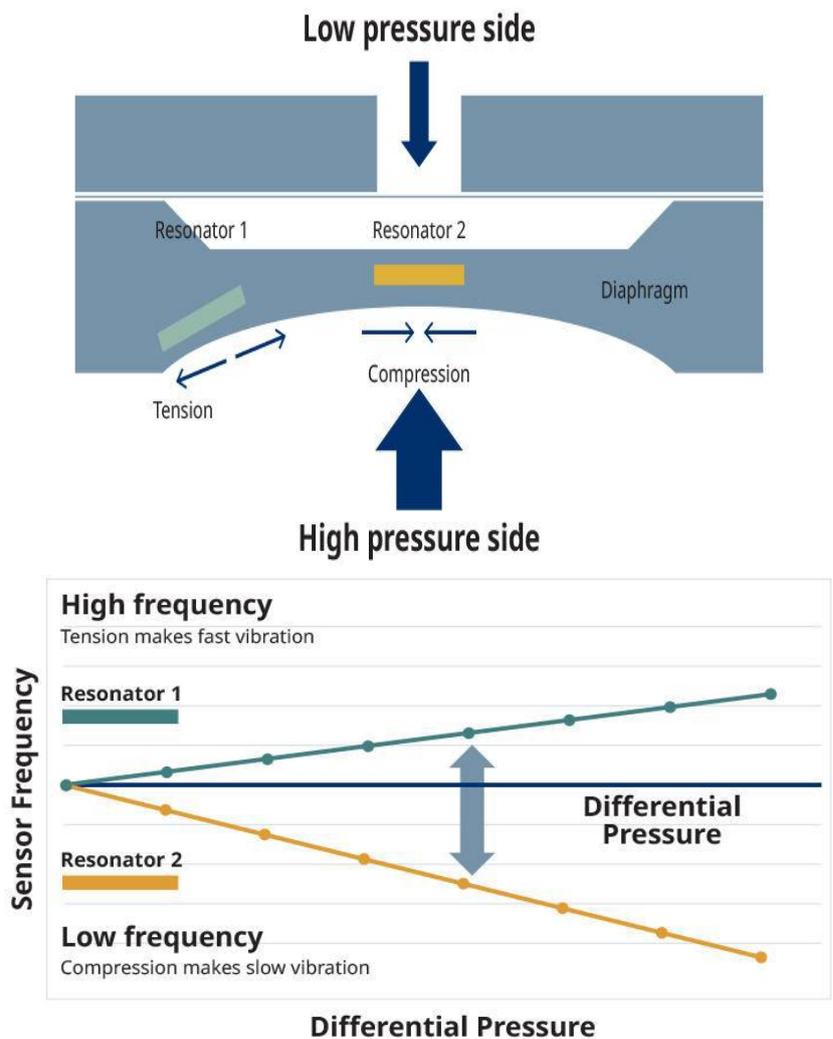
**6. ADOPTION OF INDUSTRIAL SENSORS:**

Sensors are used to calculate high precision and repeatability in physical, chemical or biological quantities. Their reliability has led to widespread adoption and utilisation in different sectors, from healthcare to fabrication infrastructure.

Some of the common sensors are:

**MECHANICAL SENSORS**

Mechanical sensors have many measuring concepts, but they often sense mechanical changes and stresses as electrical signals, such as friction, flow rate, vibration, distance, speed, acceleration, and force. For example, a pressure sensor that senses the pressure by translating it into an electric signal is often known as a pressure transducer, but the measurement concept is known as the type of strain gauge, the type of semiconductor, the type of capacitance and the type of silicon resonant. The sensing theory is that on a thin elastic diaphragm in contact with the measurements a sensing device such as a resistive element or resonator is created. The sensor elements detect physical changes such as displacement and stress due to the pressure obtained, including resistance, capacitance or frequency, as electrical changes.



**THERMAL SENSORS**

The thermal sensor is a temperature, heat, thermal flux/capacity sensor and a measurement thermal conductivity. The most well-known form of thermosensor in our lives is a thermometer used to measure solid, fluid and

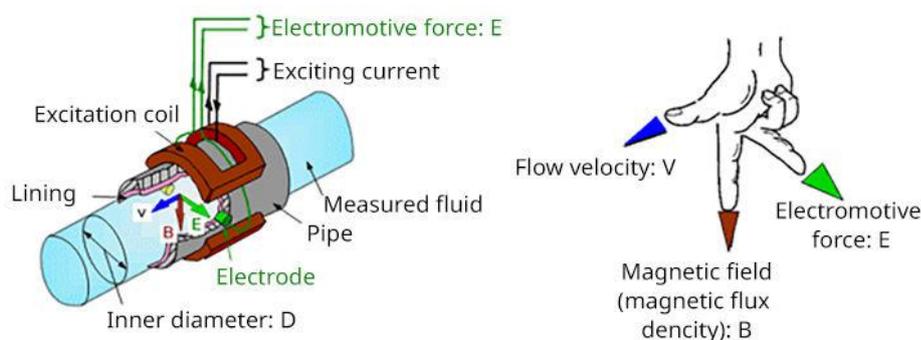
gaseous temperatures. Although there are different types of therapeutic sensors, they are mostly industrial thermocouples or thermistors with a detection capability according to the range of application. The thermocouple is based on the thermocouple theory. Thermistor is a semi-conductor of oxide which varies with temperature electrical resistance.

## ELECTRICAL SENSORS

To quantify changes in electrical properties in the process flow, electrical sensors are used. Typical measured electric properties include voltage, current, strength of the field, presence of charges, resistance and capacitance.

## MAGNETIC SENSORS

In a magnetic field, magnetic sensors identify shift and disruption, such as flux, force and direction. All can be controlled for rotation, angles, direction, presence and electric current. Two classes of magnetic sensors measuring all magnetic fields and measuring field-vector components are separated. The vector components are the magnetic field points. Applications in conjunction with current, electricity, electronics and mobile object detectors reach over and above pure magnetic field measurements to different sensors.



Faraday's Law states that the action of a magnetic flowmeter produce electromotive force proportional to the flow velocity while conducting liquids pass a magnetic field. According to the Fleming Righthand Regule, the electromotive force is generated in a direction perpendicular to the fluid movement and the magnetic field.

## LIGHT AND RADIATION SENSORS

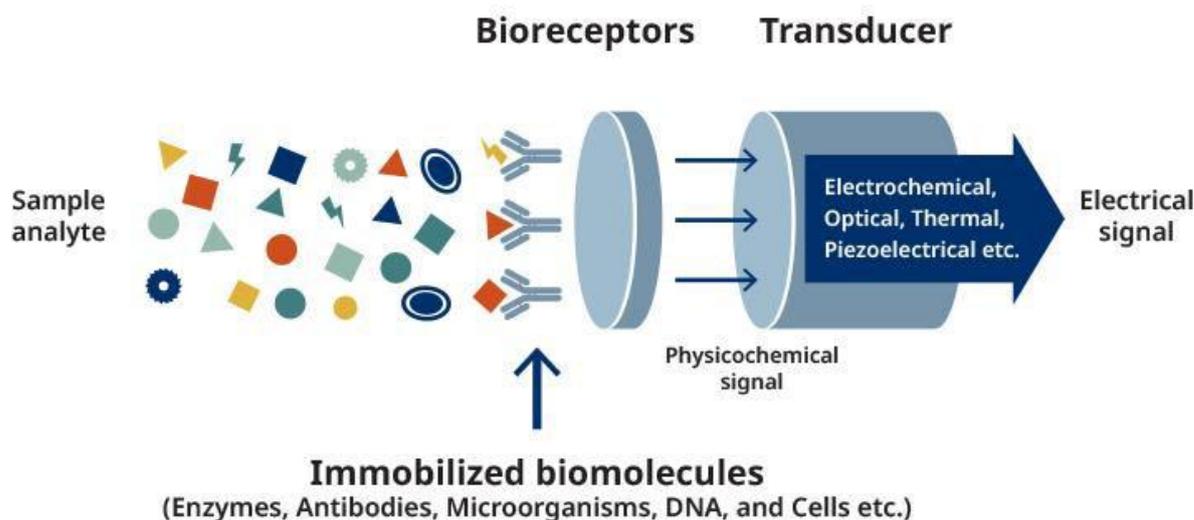
Sensors of light and radiation sense different wavelengths and light or radiation frequencies. They are used in a process industry to measure x-rays, infra-reds, ultrasound, radio waves and acoustic frequencies. The calculation of the light wavelength from a radiation removal perspective has increased in recent years. For example, by measuring and analysing the spectrum of light that is released, absorbed and scattered from a material, spectroscopic analysis may classify the components of a substance. The shape and structure of molecules and their chemical details can also be obtained by the theory of the interaction between molecules and light. Through this calculation and study, non-destructive, non-contact measurements and information collected can be carried out depending on the lights used in the wavelength.

## CHEMICAL SENSORS

Chemical sensors translate and detect chemical information, such as the structure, presence or concentration of a specific element, or chemical activity, into a readable human signal. Chemical data can be obtained from an analyte chemical reaction or from a physical property of the system. There are components that are not sensitive although they are extremely sensitive to certain components. Substances typically consist of many components and chemical sensors are used to identify only the target component to be determined by the concentration and composition ratio. High sensitiveness and high selectivity for material components are needed for chemical sensors.

## BIOLOGICAL SENSORS

Biological sensors identify states or substances that emit electric and optical signals with biological properties. The chemical sensors are considered and the electrochemical approach is used to detect the concentration and composition of evolving chemicals by means of enzymes and antibodies. These enzymes, anticorps, microorganisms, DNA and cells are used as part of the sensors, and biological sensors have the ability to classify at the molecular level of the measurement by integrating functions derived from living organisms.



## 7. CONCLUSION:

Sensors science and engineering is relevant to virtually all aspects of life including safety, security, surveillance, monitoring, and awareness in general. Sensors are central to industrial applications being used for process control, monitoring, and safety. Sensors are also central to medicine being used for diagnostics, monitoring, critical care, and public health. Sensors can improve the world through diagnostics in medical applications; improved performance of energy sources like fuel cells and batteries and solar power; improved health and safety and security for people; sensors for exploring space and the known universe; and improved environmental monitoring. The seed technologies are now being developed for long-term vision that includes intelligent systems that are self-monitoring, self-correcting and repairing, and self-modifying or morphing not unlike sentient beings. The ability for a system to see (photonic technology), feel (physical measurements), smell (electronic noses), hear (ultrasonics), think/communicate (smart electronics and wireless), and move (sensors integrated with actuators), is progressing rapidly and suggests an exciting future for sensors.

## REFERENCES:

- [1] Marek J.: "Mikrosystems for Automotive Applications", P. 1- 8, Proceedings of Eurosensors XIII, The Hague, Niederlande, 12.- 15. Sep-tember, 1999.
- [2] Tränkler H.-R.: "Zukunftsmarkt Intelligente Hausinstrumentierung", P.10-15, Research Report: "Verteilte intelligente Mikrosysteme für den privaten Lebensbereich (VIMP)", Neubiberg, 04.12.1998.
- [3] Tränkler H.-R., Obermeier E.: "Sensortechnik", Springer Verlag, Berlin, 1998.
- [4] Senturia S. D.: "Simulation and design of microsystems: a 10 Year Perspective", Sensors and Actuators, A 67, P. 1-7, Elsevier, 1998.
- [5] Schneider G.: "Selbstüberwachung und Selbstkalibrierung von Sensoren", P. 15-24, Editor in chief K. W. Bonfig, Sensoren und Sensorsignalverarbeitung, Expert Verlag, 1997.
- [6] O. Kanoun: "Modeling the P-N Junction I-U Characteristic for an Accurate Calibration-Free Temperature Measurement", IEEE Transaction on Instrumentation and Measurement, S. 901-905, Volume 49, No. 4, August 2000.
- [7] Geßner T., Dötzel W., Hiller K., Kaufmann C., Kurth S.: "Mikromechanische Sensoren und Aktoren - Funktionsprinzipien, Technologien und Applikationen", P. 211-220, VDI Berichte Nr. 1530, 2000.
- [8] Delapierre G., Danel J. S., Michel F., Bost J. L., Boura A., Aujay O.: "A quartz micromachined closed loop accelerometer", P. 223-224, Proceedings of Eurosensors 87, September 87, Cambridge

# THE INTERNET OF THINGS (IoT) CONCEPTS AND APPLICATIONS: A BRIEF REVIEW

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## ABSTRACT:

*There is no drought that IoT added a new extent to the world by the linking between smart objects. Making the link between any media and anything at any place and anytime is appreciable. Within the framework of the Internet of Things (IoT) the number of connected devices is grow exponentially toward more than 34 billion devices until 2021. IoT technology has a lot of applications in diverse fields. These will lead to the introduction of many new and modern services permit data to be transmitted between different types of devices, amplify the safety of transportation and health, and decrease the consumption of energy. In this paper, we are discussing about the Internet of Things and its applications in several fields.*

**Keywords:** IoT, IoT Platform, big data.

## 1. INTRODUCTION:

Very Big data movement was enabled due to the advance technology drivers increasing volumes of unstructured data, low-cost commodity servers and a thirst for quicker answers [1], likewise a number of various technological advances have converged to enable the Internet of everything. The connecting every moment, things embedded with electronics, software, and sensors to internet enabling to collect and exchange data without human interaction called as the Internet of Things (IoT) [2]. The Internet of Things is connecting the virtual world with the real world. The Internet of Things has a notable technology in a world that can help other technologies to reach its accurate and complete 100 % capability. The IoT is the network of physical objects that contain embedded technology to communicate and sense or communicate with their internal states or the external environment [3]. The established and start-up companies developing the necessary management and application software, has finally made the concept of the IoT mainstream. Leading the smart home, connected appliances are what people think of when they hear IoT. They imagine an intelligent house, programmed to save energy and reduce human effort to make life a more comfortable one.

The development of technologies such as smart phones, embedded systems, cloud networking, network virtualization, Nano-electronics, communications, sensors, and software will be essential to provide to things the capability to be connected all the time everywhere [4]. IoT becomes important future product and affecting many various industrial sectors. The objective of IoT is the creation of everything smart, smart environments and spaces and self-aware things for energy, mobility, climate, food, digital society, and health applications. The time to comes IoT developments will address highly distributed IoT applications involving a high degree of distribution, and processing at the edge of the network by using platforms that provide compute, storage, and networking services between edge devices and computing data centres. The big data analytics tools have the ability to handle huge volumes of data generated from IoT devices that create a continuous stream of information.

## 2. INTERNET OF THINGS PLATFORM:

IoT platform is a necessary component of a large IoT system that supports and connects all components within the system show in figure 1. IoT platform is a multi-layer technology that enables uncomplicated management, and automation of connected devices within the Internet of Things. Basically, it connects your hardware, however diverse, to the cloud by using resilient connectivity options. It is generally referred to as middleware when we talk about how it connects remote devices to user applications and handle all the interactions between the hardware and the application layers. IoT platforms originated in the form of IoT middleware, which main aim was to function as a mediator between the application layers and hardware. Its main action contains data collection of the devices over various protocols and network topologies.



Fig 1. The Internet of Things Platform

### 3. SOME APPLICATION OF INTERNET OF THINGS: SMART LEARNING ENVIRONMENT

IoT systems get to grips with the challenges being faced by the traditional teaching methodology and has proven to make learning more comfortable, more individual, and more effective. The modern approach to a teaching-learning process where an IoT based environment is created. The central part of this environment is the server upon which the entire concept lies. This server connects to the devices of students and teachers via an interactive computer-based application, and this server is connected to other devices via internet. This set-up can be termed as Smart Learning Environment (SLE). Smart Learning Environments (SLEs) shall help to establish a seamless connection between a virtual and a physical environment. SLEs adjust content and studying techniques according to the need of the student and provide a platform to communicate with others. The interaction with teachers can be done easily over the server and moreover, by the close monitoring of the learning patterns of students, teachers can take care of every student in a unique way. The lack of visualization among students can be improved by the use of visualization tools. In this way, the teaching will be depictive and demonstrative rather than the conventional lecture method. Moreover, it is seen that the physical environment of the classroom affects the teaching and learning process. The temperature, ventilation, mic, presentation board, etc. affect the leaning process [5]

#### WATER SUPPLY SYSTEM:

The IoT has the potential to transform the way town consume water. The smart meters can make better leak detection and data integrity and stop losing revenue due to inefficiency, and boost productivity by lack of the amount of time spent entering and analysing data [6]. In addition, these meters can be designed to feature consumer facing portals, providing residents with real time access to information about their consumption and water supply.

#### City Lighting

The lighting is one of the most popular examples of IoT applications for smart cities, and many industries at present are turning to wireless communications for cost savings and energy deficiency [7].

#### REFERENCES:

1. Yusuf Perwej, "An Experiential Study of the Big Data," International Transaction of Electrical and Computer Engineers System (ITECES), USA, ISSN (Print): 2373-1273 ISSN (Online): 2373-1281, Vol. 4, No. 1, page 14-25, March 2017.
2. Yusuf Perwej, Mahmoud A. AbouGhaly, Bedine Kerim, Hani Ali M. Harb. "An Extended Review on Internet of Things (IoT) and its Promising Applications" Communications on Applied Electronics (CAE), ISSN: 2394-4714, Foundation of Computer Science FCS, New York, USA, Volume 9, Number 26, PP 8– 22, February 2019.
3. Kim J., Lee, J.W., 2014. OpenIoT: an open service framework for the Internet of Things. In: Proceedings of IEEE World Forum on Internet of Things (WF-IoT), pp. 89–93.
4. Yusuf Perwej, Firoj Parwej, Mumdouh M. M. Hassan, Nikhat Akhtar, "The Internet-of-Things (IoT) Security: A Technological Perspective and Review", International Journal of Scientific Research in Computer Science, Engineering and Information Technology (IJSRCSEIT), ISSN: 2456-3307, Volume 5, Issue 1, Pages 462-482, February 2019,
5. Suleman, Q., Aslam, H. D., & Hussain, D. I. (2014). Effects of Classroom Physical Environment on the Academic Achievement Scores of Secondary School Students in Kohat Division, Pakistan. International Journal of Learning and Development, 4(1), 71. <https://doi.org/10.5296/ijld.v4i1.5174>
6. A. Zanella, N. Bui, A. Castellani, L. Vangelista, M. Zorzi, "Internet of things for smart cities", IEEE Internet of Things Journal, vol. 1, no. 1, pp. 22-32, Feb 2014.
7. N. Ouerhani, N. Pazos, M. Aeberli, J. Senn, S. Gobron, "Dynamic Street Light Management - Towards a citizen centered approach", 3rd Int. Conference.

# RADIATION EFFECT ON DEFECT CREATION ON THE STRUCTURE OF CO-ZN FERRITE

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## ABSTRACT:

*In the several spinel ferrites, cobalt ferrite is a important material for the production of permanent magnet for magnetic fuse, recording media and catalyst. Due to this, polycrystalline ferrites have been extensively studied. In the present work we report our results on the structural properties of Co-Zn spinel ferrite. It is prepared by ceramic technique and studied before and after radiation gamma rays.*

**Keywords:** ferrite, gamma radiation, defects, diffusion.

## 1. INTRODUCTION:

The polycrystalline ferrites which have high electrical resistivity and low eddy current losses are used as a high frequency transformer, memory cores, recording heads and variety of devices. The physical and electrical properties depend on the preparation technique and the type of substitution. The electron exchange interaction  $Fe^{2+} \leftrightarrow Fe^{3+}$  results in a local displacement of electron during the sintering of ferrite [1]. In some material reflects permanent change as effect of radiation [2]. These polycrystalline spinel ferrites are very useful in microwave applications, high quality filters, antenna rod, transformer cores etc.[3]. Due to their low eddy current losses and dielectric losses they are considered as dielectric material. The double property of electrical insulator and magnetic conductor made them useful in number of application. The structural, electrical and magnetic properties are known to be sensitive to the chemical composition, microstructure, type and amount of dopant [4, 5, 6] etc. The method of preparation also affects the properties of spinel ferrites. Cobalt ferrite is an inverse ferrite in which cobalt ion occupy octahedral [B] sites where as  $Fe^{3+}$  ions are distributed equally into tetrahedral (A) and octahedral [B] site. Co –Zn ferrite are important in the field of microwave industries.

## 2. EXPERIMENTAL PROCEDURE:

Samples of spinel ferrite having the generic formula  $Co_{1-x}Zn_xFe_2O_4$  with  $x = (0.0, 0.2)$  were prepared using the standard ceramic technique. The pure oxides (CoO, ZnO and  $Fe_2O_3$ ) of 99.9% purity supplied by MERCK were used. The powders were mixed in stoichiometric proportion and ground in an agate mortar pestle to obtain a very fine powder. The powder was then sintered at 900°C for 12 hrs. The sintered powder is again ground and palletized. These pellets are finely sintered to 1100°C for 24 hrs and then cooled to room temperature for 24 hrs. Finally the samples were polished to obtain disc with two uniform parallel surfaces.

The powder X-ray diffractograms were obtained by using Phillips X-ray diffractometer model 3710 in the 2 $\theta$  range of 20° to 80° at room temperature.

The samples of Co-Zn ferrite were radiated with gamma rays using  $Co^{60}$  source. The source used in the present study is a commercially available laboratory source provided by Nucleonix systems (P) Ltd. Hyderabad. All the properties were studied before and after gamma radiation.

## 3. ANALYSIS: DIFFUSION:

The diffusion information may be helpful in analysis of structural defects in the oxygen sub-lattice. The ionic crystal always attains thermodynamic equilibrium by process of diffusion. If atom 'A' jumps to the surface it leaves a vacancy behind in its original lattice site. Atom 'B' then may jump in to the vacancy and this process continues so on. And in this way vacancies may be distributed throughout the crystal lattice. The motion of the vacancy as it diffuses through the crystal is a random walk process in which each new jump is uncorrelated in the direction with the previous one [7]. The diffusion study of oxygen atoms in ferrite systems was performed in literature [8]. The present investigation was carried out is an attempt to throw light on effects of ionizing radiation on the physical properties of ferrite system.

The diffusion coefficient (D) of oxygen vacancies was estimated from the relation [8] given below,

$$D = \sigma K_B T / Ne^2$$

where,  $\sigma$  is d.c. electrical conductivity,  
N is number of atom/ m<sup>3</sup>,  
e is electronic charge,

$K_B$  is Boltzman constant

The diffusion coefficient of oxygen vacancies for  $Co_{1-x}Zn_xFe_2O_4$  ( $x = 0.0, 0.2$ ) before and after irradiation is shown in Fig. 1 as a function of temperature.

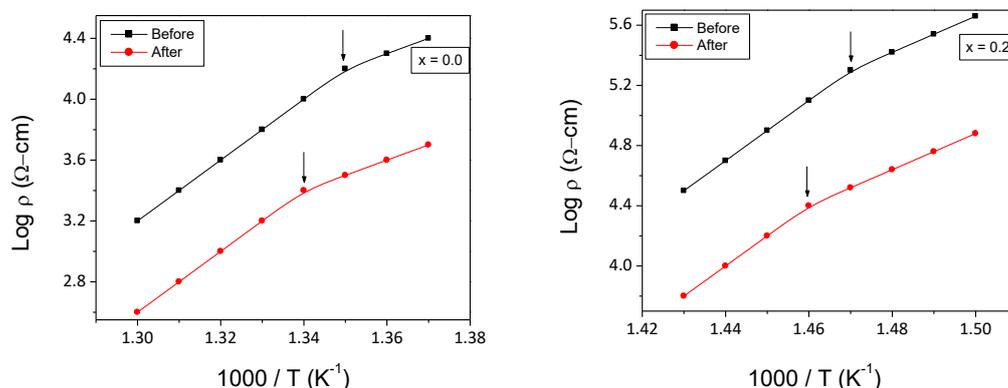


Fig. 1: Variation of  $\log \rho$  with  $1000/T$  of  $Co_{1-x}Zn_xFe_2O_4$  for  $x = 0.0$  and  $x = 0.2$

#### 4. DISCUSSION:

It is clear that diffusion coefficient increases with increasing temperature. When defects or structural vacancies are present in the lattice the diffusion of oxygen ions occurs. In the present study  $Zn^{2+}$  ions occupy tetrahedral sites and cancel substituted  $Ni^{2+}$  ions at octahedral sites and it leads to migration of ferric ions from the (A) sites to [B] sites. Fig.1 shows the variation of diffusion coefficient of oxygen vacancies, before and after radiation. The substitution of  $Zn^{2+}$  ions instead of  $Fe^{3+}$  ions at tetrahedral site create lattice vacancies, since the valency of  $Zn^{2+}$  ion is less than that of  $Fe^{3+}$  ions. The increase of temperature increases the mobility of vacancies which make more oxygen vacancies to be diffused.

#### 5. RESULT:

It is concluded on the basis that the interaction of ionizing gamma radiation with the material gives rise to the production of lattice defects. And in turn the displacement of atoms from their equilibrium position. Then displaced ions occupy the lattice vacancies and as a result reduced the diffusion of oxygen ions. The diffusion coefficient of oxygen before radiation was in the range  $10^{-12} - 10^{-16}$  while after radiation effect it goes to  $10^{-10} - 10^{-13}$ . It is noticed that this change in diffusion coefficient is in agreement with the reference [9, 10].

#### REFERENCES:

1. I.M. Hemeda, *J. Magn. Magn. Mater.* 271 (2004) 318.
2. O.M. Hemeda, M.El-Sadwaay, *J. Magn. Magn. Mater.* 256 (2003) 63.
3. P. Didukh, J. M. Greneche, A. Slwska-Waniewaska, P. C. Fannin and L. I. Casa, *J. Magn. Magn. Mater.* 242 (2002) 613.
4. S. Ghosh, A. Gupta, P. Ayyub, N. Kumar, S. A. Khan, D. Banerjee, R. Bhattacharya, *NIMB* 225 (2004) 310.
5. M.A. Mousa, M.A. Ahmed, *J. Mater. Sci.* 23 (1988) 3083.
6. A. A. El-Bellihi, T.Farid, M.Z.Aomran, M.A.Mousa, *J. Radio Anal.Nucl.Chem., Letters* 154(4) (1991) 285.
7. O.M. Hemeda, *Phase Transition*, 92(1994)
8. O.M. Hemeda, M.El-Saadway, M.M.Barakat, *J. Magn. Magn. Mater.* 219 (2000) 73
9. V. B. Felisav, G.A. Kozhma, A.Ya.Fashman, T.E.Kurennykh, V.B.Vyuhodets, *J. Appl. Phys.* 83 (1998) 11.
10. B.Gillot, *Ann. Chim, (Paris)* 3 (1978) 209

# APPLICATION OF WIRELESS SENSOR NETWORKS IN MEDICINE

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## ABSTRACT:

The wireless sensor networks are a group of spatially dispersed and dedicated sensor for monitoring and recording the physical conditions of the environment and organizing the collected data at a central location. The development of WSNs was motivated by military applications such as battlefield surveillance; today such applications are used in many levels for industrial and consumer applications.

**KEYWORDS:** Sensor, Application, Environment.

## 1. INTRODUCTION:

Healthcare applications of wireless sensor networks allow in-home assistance, smart nursing homes, clinical trial and research augmentation [2].

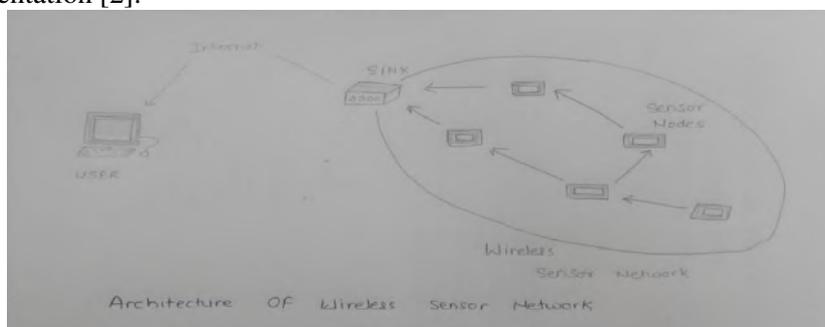


Fig. 1

### 1.1 Types of sensor networks in medicine

1. Implanted: inserted inside the body.
2. Wearable: used on the body surface of a human or just at close proximity of the use.
3. Environment embedded systems: employ sensors contained in the environment.

### 1.2 Advantages:

1. Ease of use
2. Reduced risk of infections
3. Reduced risk of failures
4. Reduced user discomfort
5. Enhanced mobility
6. Increasing efficiency of treatment
7. Lower cost of delivery Body-area networks can collect information about an individual's health, fitness, and energy expenditure.[3][4]

## 2. APPLICATIONS:

1. Cancer detection: Although, there is no conclusive evidence on how to prevent cancer and early detection is crucial. Studies have shown that cancer cells exude nitric oxide, which affects the blood in the area surrounding a tumour. A sensor with the ability to detect these changes in the blood can be placed in suspect locations. [5] Research is also being conducted on placing sensors on a needle, enabling physicians to diagnose tumours without having to do a biopsy. Sensors used in this device have the ability to differentiate between different types of cells, identifying cancerous ones [5]

Research is also being conducted on placing sensors on a needle, enabling physicians to diagnose tumours without having to do a biopsy. Sensors used in this device have the ability to differentiate between different types of cells, identifying cancerous ones [5]

2. Glucose level monitoring. A biosensor could be implanted in the patient once [6]. The sensor would monitor the glucose levels and transmit the results to a wristwatch display for instance. This approach leads to fewer invasions, more accuracy due to multiple readings, and anticipation to insulin needs.[6]

3. Asthma: A sensor network that can alert the user for allergens in environment that can reduce the chances of asthma attacks.
4. Cardiovascular diseases: smart sensor nodes that can be installed on the patient in an unobtrusive way [7,8, 9,10, 11-14]. The medical staff can monitor heart rate, changes in heart activity that can help in possible prevention of cardiovascular accidents.
5. Support for older age people A sensor can help for attending aged, bed ridden patients, paralyzed people in overall their health emergencies and daily needs. That will help patient her/him, relatives, and neighbours as psychological benefit.

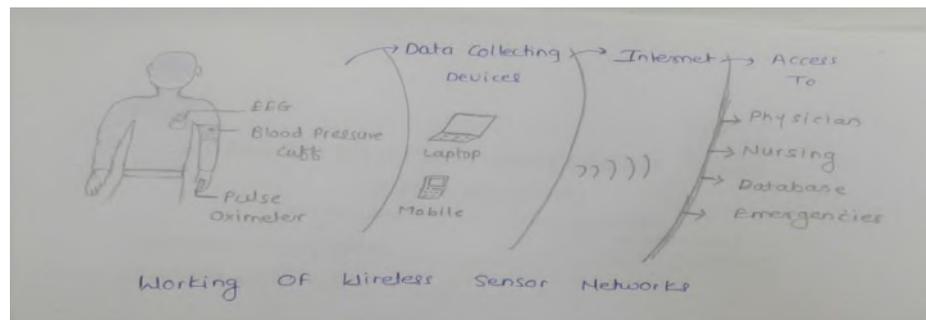


Fig. 2

### 3. CHALLENGES:

1. Low power
2. Limited computation
3. Material constraints
4. Continuous operation
5. Robustness
6. Security and interference

### 4. CONCLUSION:

In near future wireless sensor networks are going to evolve at many levels in health care systems. As monitoring of health conditions is going to get easier, regulation and prevention of many conditions can be taken into consideration.

### REFERENCES:

1. Ullo, Silvia Liberata; Sinha, G. R. (2020-05-31). "Advances in Smart Environment Monitoring Systems Using IoT and Sensors". *Sensors* (Basel, Switzerland). 20 (11): 3113. doi:10.3390/s20113113. ISSN 1424-8220. PMC 7309034. PMID 32486411.
2. J. A. Stankovic, Q. Cao, T. Doan, L. Fang, Z. He, R. Kiran, S. Lin, S. Son, R. Stoleru, and A. Wood, "Wireless Sensor Networks for In-Home Healthcare: Potential and Challenges," in *High Confidence Medical Device Software and Systems Workshop*, Pennsylvania, USA, 2005.
3. Peiris, V. (2013). "Highly integrated wireless sensing for body area network applications". *SPIE Newsroom*. doi:10.1117/2.1201312.005120.
4. Tony O'Donovan; John O'Donoghue; Cormac Sreenan; David Sammon; Philip O'Reilly; Kieran A. O'Connor (2009). *A Context Aware Wireless Body Area Network (BAN) (PDF)*. *Pervasive Computing Technologies for Healthcare, 2009*. doi:10.4108/ICST.PERVASIVEHEALTH2009.5987. Archived(PDF) from the original on 2016-10-09.
5. L. Schwiebert, S. k. S. Gupta, and J. Weinmann, "Research Challenges in Wireless Networks of Biomedical Sensors," in *7th annual International Conference on Mobile Computing and Networking*, Rome, Italy, 2001, pp. 151-165.
6. Y. J. Zhao, A. Davidson, J. Bain, S. Q. Li, Q. Wang, and Q. Lin, "A MEMS Viscometric Glucose Monitoring Device," in *The 13th International Conference on Solid-State Sensors, Actuators and Microsystems, TRANSDUCERS '05, 2005*, pp. 1816-1819.s
7. K. W. Goh, J. Lavanya, Y. Kim, E. K. Tan, and C. B. Soh, "A PDA-based ECG Beat Detector for Home Cardiac Care," in *IEEE Engineering in Medicine and Biology Society*, Shanghai, China, 2005, pp. 375-378.

8. H. Zhou, K. M. Hou, J. Ponsonnaille, L. Gineste, and C. D. Vaulx, "A Real-Time Continuous Cardiac Arrhythmias Detection System: RECAD," in IEEE Engineering in Medicine and Biology Society, Shanghai, China, 2005, pp. 875-881.
9. L. Huaming and T. Jindong, "Body Sensor Network Based Context Aware QRS Detection," in Pervasive Health Conference and Workshops, Innsbruck, Austria, 2006, pp. 1-8.
10. J. Luprano, J. Sola, S. Dasen, J. M. Koller, and O. Chelelat, "Combination of Body Sensor Networks and On-body Signal Processing Algorithms: the Practical Case of MyHeart Project," in International Workshop on Wearable and Implantable Body Sensor Networks (BSN 2006), Cambridge, MA, USA, 2006
11. J.-L. Lin, H. C. Liu, Y.-T. Tai, H.-S. Wu, S.-J. Hsu, F.-S. Jaw, and Y.-Y. Chen, "The Development of Wireless Sensor Network for ECG Monitoring," in 28th Annual International Conference of the IEEE, Engineering in Medicine and Biology Society, New York, NY, USA, 2006, pp. 3513-3516.
12. D.-S. Lee, Y.-D. Lee, W.-Y. Chung, and R. Myllyla, "Vital Sign Monitoring System with Life Emergency Event Detection Using Wireless Sensor Network," in IEEE Conference on Sensors, Daegu, Korea, 2007, pp. 518-521.
13. P. Cao, S. Jia, X. Wang, and J. Zhou, "Wearable and Wireless Multi-Electrophysiological System," in 3rd IEEE/EMBS International Summer School on Medical Devices and Biosensors, Cambridge, MA, USA, 2006, pp. 83-85.
14. S. A. Taylor and H. Sharif, "Wearable Patient Monitoring Application (ECG) using Wireless Sensor Networks," in 28th Annual International Conference on the IEEE Engineering in Medicine and Biology Society, New York, NY, USA, 2006, pp. 5977-5980
15. ."Wireless sensor networks for battlefield surveillance" (PDF). 2006.

# A REVIEW OF AGRICULTURAL PRODUCTS AND PRICING STRATEGY (FARMERS AND GOVERNMENT AGENCIES OF MAHARASHTRA STATE)

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## 1. INTRODUCTION:

It has been seen that since last decade, many farmers committed suicide. It has been also observed that many malnutrition cases have been in news specially related with children and women. These events points to the earnings of farm labourer. Farm labourers are paid very less and the wages are not standardized and regulated by government. They are underpaid and that they suffer with all types of problems and diseases. Government appointed a committee in this regard to control the suicides and poor wages being paid to the farmers and farm labourers. The committee proposed wage scheme in terms of price of jowar. The Committee had assumed that each one staple food requirements are met by jowar only. This is not only a factual error-almost every family eats some pulses-but also a nutritional error. To meet the minimum protein needs from the cheapest source we must allow certain amount of pulses. The ICMR recommendations for a labourer's family of five considered above are 350 gm of pulses. So, for a family of 5.6 it'll be approximately 400 gm of pulses per day.

The prices of jowar rise slowly as compared to the costs of other essential commodities which are industrial productions. So the 60 per cent of the jowar (out of the entire wages in jowar) which is supposed to hide these expenses proves insufficient because the prices of jowar lag behind. Besides, since the costs of jowar fluctuate consistent with the season, jowar isn't the right standard base. For this purpose a rural consumer dearness index should be evolved systematically and used to cover the general price rise. But until such index is evolved, we'll need to stick with the Committee's erroneous method of using jowar because the base.

To make the implementation of these wages practically possible, two suggestions are proposed and shall be studied during the research. The farmers may find it difficult to provide these wages at the present costs of production. A way out would be to calculate the cost of production of agricultural produce with this new level of wages – either for hired labour or for family labour; the farmer would then be able to retrieve his costs as price for his produce. The daily wages calculated here are based on the calorie requirements after eight hours of heavy work. But some labourers on daily fixed wages in EGS won't put in sincere eight hours labour. A solution can be found by keeping the daily wages in EGS slightly low – say Rs. 8 per day – which will ensure that after sincere and heavy work of eight hours the labourers' couples will earn Rs. 21.35. This will also place the responsibility on the labourers to do sincere work to earn the minimum wages.

## 2. LITERATURE REVIEW:

Yogima Seth Sharma (2017)<sup>[1]</sup> in her research said that the Government of Maharashtra has recently appointed a committee to review the rates of minimum wages for agricultural labourers and in the Employment Guarantee Scheme (EGS). Minimum wages must be in some way related to the cost of living. The workers must be able to meet minimum requirements of food, shelter, clothing, medicine and education. The wages should be fixed in quantity of one kind of staple grain, i.e. jowar in Maharashtra; the wages should be calculated in a similar way first then converted to the cash at a price at par with the asking price of first quality jowar at ration shop. Thiagu Ranganathan (2015)<sup>[2]</sup> thaws light on fixing the wages in kind, we have considered following factors. An average working man requires at least 2,000 to 2,200 calories for which 625 gm of stale food is a necessity. They were assuming a family of 3 ½ units, i.e. husband, wife and three children. Their requirements be 2,187 ½ gm. This would be the staple food requirements of the average family. Normally, it is advised, that staple food requirements are 40 to 50 per cent of the total budget. Devi Prasad Kotni (2012)<sup>[3]</sup> said working on this basis of 40 per cent is in favour of labourer, the total budget would come to 5,468 gm jowar. Making allowances on weekly basis we will safely assume that a poor family budget would be 6kg to six .4kg. This concession is also in consideration of the fact that we cannot assume always that there are two earning workers in family. But normally six kg should be earned by two persons. Wire (2017)<sup>[4]</sup> says wages for men and women should be taken as equal. We were advised that 3 kg are often assumed because the daily wages in a similar way for an adult. Paying capacity (of the employer) cannot be altogether ruled out as a factor in this case.

Datt, Ruddar, Sundaram<sup>[5]</sup> in their book Indian Economics says that using issue price of jowar at ration shops for converting wages in kind into cash is ridiculous. The issue price of first-class jowar has gone up by only 20% but the costs of essential commodities have a minimum of doubled. Sharma A. K.<sup>[6]</sup> in his book says that the total cost of

minimum living for the family would be Rs. 21.35 per day. By the Committee's own guiding principles, a labourer's family should get this much amount as wages to cover the minimum necessities of life. Since this amount is to be earned by a couple, and assuming that equal wages are given to male and female, the minimum daily wage should be Rs. 10.70. Vasudeva Rao and Rajni Kanth (2017)<sup>[7]</sup> says present labour ministry has nearly doubled the minimum wage for agriculture labourer including those hired on contract, barely six months after a significant increase in minimum wages for non-agricultural labourer. Centre had on Lammas last year raised wage of non-agricultural workers by 42%. According to a ministry of labour, unskilled agriculture labourer would be entitled to get wage of Rs 300 per day in towns under C-category while those in B and A category towns will get Rs 303 and Rs 333 respectively. Similarly semi-skilled workers are going to be getting wage of Rs 364, Rs 335 and Rs 307 during A, B and C-category towns while the skilled workers shall be paid Rs 395, Rs 364 and Rs 334 under the three town categories respectively. Highly skilled workers will get Rs 438, Rs 407 and Rs 364 during A, B and C-category towns. Leslie Mayer (2017)<sup>[8]</sup> The committee hopes that the level of rates will go up when ruling prices for food grains also move up. The wages must be soon revised as there is rise in procurement and issue price of jowar. The EGS rates should be on par with the minimum wage in 3rd zone (i.e. 3 kg) and should be uniform throughout Maharashtra.

Samuel, Basavraj, Pushpanjali Rejani (2015)<sup>[9]</sup> The benefit of the loan scheme from the Maharashtra government will be exclusively for farmers without any other source of income. According to a government resolution, those getting income from other jobs, albeit they own farms, are going to be out of the ambit of the scheme, under which initial crop loan assistance of 10000 is provided to farmers. The Rs 10,000 initial loan assistance scheme is supposed for farmers in distress who have agriculture because the only source of income. Hence, an in depth list is ready within the GR which will filter those that produce other sources of income. For the primary time such a meticulously drafted resolution is ready to comb out the undue beneficiaries. Many teachers, professors, shop owners and repair providers from rural and semi-urban areas aren't solely hooked in to agriculture, though they avail crop loan for cultivation. The resolution states that each one the teaching and non-teaching staffs within the local body-run and government-aided schools within the state are going to be disqualified from the scheme. Similarly, those registered under the Maharashtra Shops and Establishment Act (1948) also will be omitted from the list of beneficiaries. The Rs 10,000 assistance is merely for the farmers who are in distress. To avoid any diversion of cash from agriculture, the state has come up with this GR and therefore the list of these who qualify and people who don't qualify as farmers. Sabesh, Prakash Bhaskaran (2014)<sup>[10]</sup> Since an agricultural labourer or a worker in EGS worked six days a week, he has to earn seven days' requirements in those days of work. Taking into account these facts and assuming that the staple food requirements are 2,187 kg, the total economic requirements for a labourer's family were calculated by the committee to be 6.4 kg of jowar (which the committee unnecessarily 'rounded off' to 6 kg). Using same method but the staple food requirements of three .55 kg jowar and 0.4 pulses we now calculate that the entire economic requirement to hide the minimum cost of living for the labourer's family is equal to 9.8 kg jowar and 1.17 kg pulse.

### 3. CONCEPT OF THE STUDY:

The average productivity of Indian agricultural sector is one of the lowest in the world and is a cause for concern, as millions of people depend on cultivation and their economic wellbeing is decided by the crop's performance and productivity. But, the National Agricultural Research System which has been instrumental during this transformation by developing many sorts and hybrids, crop production and protection technologies and packages fitted to specific situations has demonstrated the productivity potential several times the sector average. The transfer of potential has been hampered by several factors, which are generally mentioned as 'constraints to productivity'. The constraints are often bio-physical or socio-economic and at field (micro) level and community (macro) level. This study is an attempt to document the types and extent of these constraints collected from primary and secondary sources and quantified. The information shall be a useful input in technology generation and transfer and planning. This increase in productivity shall also enhance the wages to agricultural workers. The study shall be of great importance to Agriculturalists, industries, various other industries related to agriculture, traders, etc. This study shall also be of great importance for rural as well as urban political leaders and social reformers to know the latest conditions of wages being paid to agricultural workers. This study shall guide them with the problems and probable suggestions and solutions to those problems. The study is limited to wages of labourers in agricultural sector. The area of study is also limited to selected parts of Maharashtra state. Other areas of Maharashtra and other products in business and other businesses are excluded in the study for the reason of huge population and vast scope.

### 4. CONCLUSION:

To be fair to the labourers, some method must be used for their upgradation and better livelihood. There can be jowar requirements actually meant for consumption 3.35 kg per day should be converted in to cash at the ration shop issue price rate if the government supplies this quantity of jowar through ration shops. The remaining 6.4 kg of jowar is

supposed to hide the opposite expenses of life that the labourer has got to pay at the present market rates. So in converting this portion of jowar into cash, dearness index or the retail selling price of jowar in the open market should be used. The pulses are not provided at controlled rate. Hence this quantity should be converted in to cash.

## REFERENCES:

- [1]. Yogima Seth Sharma (2017), "Government hikes minimum wage for agriculture labourer", Article published in 'Times of India', in section TOI Business, dated Mar 2, 2017
- [2]. Thiagu Ranganathan, "Farmers' Income in India: Evidence from Secondary Data" , A study submitted to Ministry of Agriculture, year 2015, pp 1-89
- [3]. V.V. Devi Prasad Kotni, "*Prospects And Problems Of Indian Rural Markets*", published in ZENITH International Journal of Business Economics & Management Research-3, March 2012.
- [4]. The wire, "Farm owners with other income sources ineligible for Maharashtra Agricultural Loan Scheme", from Press Trust of India, dated 16/06/2017
- [5]. Datt, Ruddar, and KPM Sundaram. "Indian Industries." *Indian Economy*. Rev. 63rd ed. New Delhi: S. Chand, 2011. 618. Print.
- [6]. Sharma A. K. "Price Determination and Policies." *Industrial Economics*, First Edition, New Delhi, Anmol Publications Pvt Ltd, 2006.186.Print.
- [7]. Vasudeva Rao B.S., Rajni Kanth G. "Role of Community Towards School Development", Rural Development and Empowerment of Weaker Sections, Ambla Cantt. The Associated Publishers, 2007.227.print
- [8]. Leslie Mayer, "Global Cotton Trade at 4 year High in 2017/18", research article published by United States Department of Agriculture Economic, Statistics and Market Information System', dated 14<sup>th</sup> December 2017
- [9]. Josily Samuel, Basavraja H., Pushpanjali and R. Rejani, "Production, Growth and Export Competitiveness of Raw Cotton in India – An Economic Analysis", research article published in 'Agricultural Research and Technology', Volume 1, Issue 1, Year 2015
- [10]. M. Sabesh, A. H. Prakash and G. Bhaskaran, "Shift in Indian Cotton Scenario due to Shift in Cotton Production Technology", published research paper in 'Indian Society of Cotton Improvement: Cotton Research Journal', Volume 6, Issue 1, January-June 2014

# BIG DATA : AN OPPORTUNITY AND CHALLENGE FOR E-COMMERCE

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## 1. INTRODUCTION:

Data have exploded exponentially across the world through the internet and its forms such as e-commerce. This continuously increasing knowledge is very difficult to process and in different ways. Millions of electronic commerce and internet-based customers flood a million bits of data. The increased volume of company data, customer details and prices in the product catalogue drive exponential data development. The most significant study is this massive dataset, which is also known as big data.

## 2. WHAT IS BIG DATA?

Although more and more data are being processed over time, how many data are in it? Each day the quantity of data in our world is high. In zettabyte and petabyte the volume of information is now calculated. The number of data or files that encapsulate knowledge in the digital universe and the number of servers that run the global stores will rise tenfold over the next decade. The increasingly large data travel very quickly and doesn't fit into database architecture structure. The "Big Data" is such a massive, complicated and unstructured data, which is difficult to manage and store.

## 3. HOW BIG IS BIG DATA?

Electronic consumer trends, including social media, electronic shopping, mobile-commerce, have produced millions of data in the form of e-mails, images, blogs, videos and social network messages, among others. For eCommerce companies it is an immense challenge to process these broad and various data sets to better understand the actions of their clients. This challenge will continue to increase in the coming years. Data are generated in various ways, including Social Media messages, sensor and medical device data collection, videos and operating records, every day about 2,5 milliards gigabytes. In the future, the data volume will rise by 800% in the next five years and 80% in the form of unstructured information. In the last 10 years, we have increased internet content 30-fold to 35 zeta bytes with an annual rise of 60 percent in data volume.

The biggest challenge for the e-commerce industry is this extension of data. Since this information is very large and very difficult to obtain, because it is produced at very high speed. The e-commerce industry recognises that conventional data base management tools cannot address the Big Data issue as this data is unstructured and large-scale.

The e-commerce site contains two kinds of data - one, ERP, CRM, SCM, and an organised information from interruptive systems, including web, e-mail, images and so on. Both these structured and unstructured data are obtained and analysed within the span of big data. Facebook has 500 million users actively generating text, pictures and video data in different ways. E-commerce Giant Walmart is likewise managing a million one-hour transactions. These transactions are imported into databases of over 2.5 peta bytes of data (2560 terabytes). Every second the planet is made up of 10,000 payment card transactions. Any transaction needs rapid and robust processing, through several third-party traders worldwide. The e-commerce giant Am-azon.com manages millions of back-end activities daily and requests from more than a half million third-party dealers. The central technology for the continuous operation of Amazon is Linux-based, with a capacity of 7.7 tb, 18.5 tb and 24.7 tb as of 2005 and the world's top three Linux data bases. The scale and structure of Big Data can be calculated from these estimates.

## 4. HOW E – COMMERCE COMPANIES USE BIG DATA?

Big data partnership reaps several huge benefits to the e-commerce business. A traffic snapshot is taken from an e-commerce store. It can be most commonly visited by search engines or online advertising. Facebook, including tweets created by people about a specific product, gathers data that connects a user more regularly. Furthermore, how long a user spends on the particular E-commerce website, what information is obtained from cookies stored on the computer, and which goods the user is most aware of help market, and how better campaigns can be made, and what managers can gain a better insight into products and clients. Customers are also analysing the actions even though the consumer has nothing to buy.

A data analyst team processes data in text, imagery, video that digital customers leave on the internet. The extracted data includes the real internet activity and existing patterns of customers. This useful knowledge helps e-commerce sites prepare potential micro-strategies. Companies also gather information such as competitive prices,

product revenues, regional preferences and consumer behaviour to assess the correct price to conclude sales and customer-appropriate. Big Data is used by e-commerce firms to rapidly collect information about different goods from various parties to reliably pass on time of delivery to their clients. Big Data enables businesses in e-commerce to detect market incidents before happening. For instance, an e-commerce company may automatically order its inventory of sweaters of a certain colour and a certain price in advance from last year's most sold price range and colours of sweaters.

## **5. BIG DATA AN CHALLENGE:**

Today, an Internet consumer decides on the purchase of the ranking, feedback and price comparisons. They are using information such as social media, consumer forums and blogs in real time to make this decision. At all these touch points, online consumers trace their tastes and behaviour in all transactions and they find their way across the market. In order to follow a customer-intense approach that helps them engage clients, ECOs must collect, aggregate, process and evaluate structured and unstructured information.

A big problem is the fact that ecommerce businesses are unable to use such huge data. Even an eCompany spends massive amounts of money to obtain insight from providers and customers' data streaming, less than 40 percent of the workers are adequately qualified and willing to do this. Big data must be supplemented with "big judgement" Although the Big Data offers a good policy scenario, the final decision-making process lies in the hands of people. It is also prone to danger or misjudgement. Challenges of Big Data can be summarized as:

### **5.1 The Volume**

Big data scale is the greatest obstacle. More than what your systems can handle, several e-commerce sites generate knowledge. The layout of currently e-commerce websites is a problem. The Big Data now demands elastic storage and a distributed query approach. Due to exponential data generation and development, binding a big data to a certain structure is extremely difficult. Many e-commerce firms have massive quantities of data archived, maybe in logs, but they are not capable of managing them.

### **5.2 The pace**

The data input and output speed is around 1 petabyte/s on the e-commerce platform on average. The velocity refers to the rate of data changes and how rapidly they must be used to deliver real value. If the data analysis or data storage of an e-company runs at much slower speed than the actual data generation, this challenge can get worse. The speed issue will occur if millions of customers simultaneously click on the e-commerce website or if thousands of sales transactions occur every second.

### **5.3 Trendy**

Big data consists of a number of structured and unstructured data. Data can be text, video, image, etc in any form. It is also a challenge to take different forms of data structure into account. Very few times the data is organised and ready to process and deliver the desired insights for business intelligence.

### **5.4 The Value**

An additional challenge to Big Data is the derivation of useful information from data which is considered to be the most critical use of the study of Big Data. To get the most value out of big data, it is hard to ask the correct questions than collect all information. For example, an organisation may simultaneously analyse information from social networks, databases and customer server call records. It is however, much more critical that data should be relying on and considered by an e-commerce company for further research.

### **5.5 Networking with high speed**

One Terabyte of the day can now be processed for a mere 100 \$ on the disc, but moving it over a standard high-speed internet connection on the Internet takes one hour inside a cluster device. These internet bandwidth restrictions increase the difficulty of using the device and store resources effectively in a large data cluster. The problem is further increased by the link between geographical clusters and the transfer of data between the clusters and the end users. For example, this network problem definitely is a major issue for e-commerce sites such as Amazon.com, which serves customers worldwide. This slow bandwidth makes it hard to transfer transaction information between the server and the client worldwide.

### **5.6 Device cluster schedule**

Big data involves the distribution and processing of data across different nodes, organised through a distributed machine. It is much harder to programme the distributed computer systems which are re-needed in a reasonable period

of time to process very large data sets. The programme that is used for the purpose of analysing the big data requires to spread the data across the cluster and to conduct computing across the nodes of the clusters. Methods for arranging and programming frameworks such as Google's MapReduce programming framework have been innovated. However, it is important to develop much more efficient and general techniques for completely realising the potential of large data calculation across multiple domains.

### **5.7 Engineering data analysis**

Data analyses are still early in their creation today. There are several data analytics algorithms available, but the data structure is restrained. Big data, however, includes a structure variable. It is therefore difficult to establish techniques for data analysis which can operate effectively with a wide range of data and an enormous volume. Many techniques are not able to accommodate statistical rust and holes in real world data beyond data sets of few million elements. Further research is needed to develop techniques for the application of trillions of elements in real situations and data. Automatic or semi-automated data processing is the heart of large-scale e-commerce data measurement. Big Data calls for new querying and reporting methods. New data integration software, new querying tools, new reporting tools and new dashboards will be needed for the promising future for the Big Data E-commerce.

### **5.8 Protection and privacy maintenance**

Given that e-commerce organisations are gathering user data, it is important to ensure that this information is maintained secure and that the user's privacy is maintained.

### **5.9 Source of data**

The problem of data integration cannot be solved by big data. E-commerce companies usually aim to collect "good information, "OK" data and sometimes even "some" customer data. Unless organisations are able to extract data from processes, many data cannot be analysed. With fusions and acquisitions, the competitive nature of business today exacerbates the problem.

## **6. CONCLUSION:**

While numerous ecommerce companies collect enormous quantities of data, only a few use the insights given by big data analysis properly. The use of big data in e-commerce undoubtedly changes the way we shop today and affects the future of e-commerce businesses than the previous computer revolution. By making a good study and processing of the big data in the future, e-commerce shall benefit from their trade. Moreover, data generated from the study of big data can be used to make more business decisions by Expert Systems, which will be much better than the ability to make decisions. This will undoubtedly improve the profitability and popularity of e-commerce trade. Before it can be used in its entirety Howe-er must solve several technical challenges listed in this paper. Advanced research should thoroughly exploit and resolve the complexities of technology and application of big data in e-commerce. This study highlights the opportunities and challenges associated with the use of broad data in e-commerce.

## **REFERENCE:**

1. Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17, 99–120.
2. Barrett, M., Davidson, E., Prabhu, J., & Vargo, S. L. (2015). Service innovation in the digital age. *MIS Quarterly*, 39, 135–154.
3. Barton, D. (2012). Making advanced analytics work for you. *Harvard Business Review*, 90(78–83), 128.
4. Barton, D., & Court, D. (2012). Making advanced analytics work for you *Harvard Business Review*, 90, 78.
5. Beath, C., Becerra-Fernandez, I., Ross, J., & Short, J. (2012). Finding value in the information explosion. *MIT Sloan Management Review*, 53, 18–20.
6. Benedettini, O., Neely, A., 2012. Complexity in services: An interpretative framework, POMS 23rd annual conference.
7. Bennett, P., Giles, L., Halevy, A., Han, J., Hearst, M., Leskovec, J., 2013. Channeling the deluge: research challenges for big data and information systems, *Proceedings of the 22nd ACM international*.

## WIRELESS NETWORKING ADVANCEMENT

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### ABSTRACT:

*A review of what is needed to build a generic wireless network is provided. The literature attempts to discuss the most popular wireless technologies and their protocols. An overview of the advantages that wireless networks have over wired technology is then given. The paper also advances some of the major security risks that wireless networks face. Various strategies that can be employed to mitigate these risks and safeguard the privacy and security of the network are given. A review of how wireless networks can be used in education and training is then given and it is demonstrated that the education field has benefited from the growth of wireless technology and the cost effectiveness of this technology.*

### 1. INTRODUCTION:

The invention of the computer and the subsequent creation of communication networks can be hailed as the most significant accomplishment of the 21st century. This invention has transformed the way in which communication and information processing takes place. The network functionality of computer systems has been exploited by the government, businesses, and individuals with immense benefits being reaped by all. The two major types of networks in existence are the fixed connection (which makes use of cables) and wireless networks (which use waves to transmit data). The backbone of the vast communication network is made up of fixed connections which mostly utilize fiber optics as well as Ethernet. Even so, wireless networks have gained increased popularity in the course of the past decade. In year 2000, wireless networks were limited in existence due to the prohibitive cost of wireless devices such as integrated routers and access points and laptops (1). The hardware cost has significantly decreased making wireless networks affordable to many individuals and organizations. In addition to this, technological advances have increased the capacity and efficiency of wireless networks which have made them favorably compare with wired networks. This paper will set out to discuss wireless networking with particular focus on the types of wireless technologies commonly employed and the security measures used to protect wireless technology. A discussion of how wireless technology can be used in education and training settings will also be embarked on.

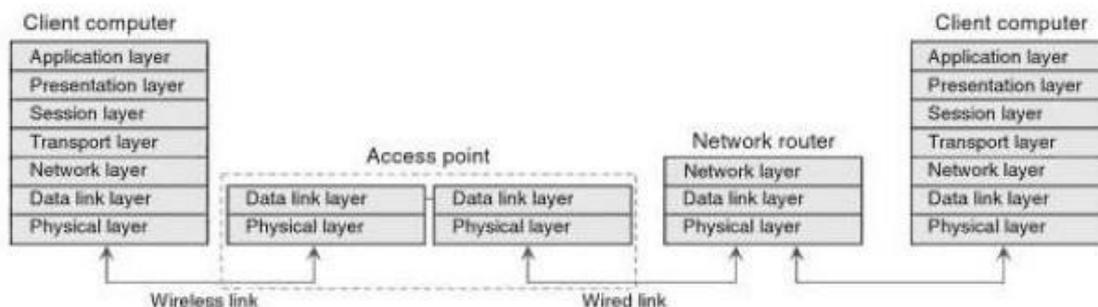
### 2. COMPUTER NETWORKS:

An Overview Computer networks are made up of interconnected computing devices which communicate with each other and these networks are categorized by their sizes. The smallest is the Personal Area Networks (PANs) which extend to a few meters and connect adjacent devices together. Wireless PANs make use of technologies such as Bluetooth to replace cabling as data is moved from device to device. Local Area Networks (LANs) extend from a few hundred meters to a few kilometers and they were designed to cover buildings which are close together or large facilities. Wireless LANs are implemented in facilities such as campuses and busy business locations. Metropolitan Area Networks (MANs) connect different buildings and facilities within a city. These networks mostly make use of wired connections with fiber optic transmissions providing the fastest speeds. The biggest networks are Wide Area Networks (WANs) which connect cities and countries together and they typically make use of fiber-optic cables which operate at speeds of up to 40Gbps.

### 3. WHAT IS WIRELESS NETWORKING?

The infrastructure of wireless networks makes use of standard protocols that are oriented according to the demands of the network. This makes the capacity as well as the quality of services of wireless networks vary based on the devices. Wireless networks are typically expected to deal with devices that are made from various manufacturers. The networks are therefore supposed to be able to support different hardware technologies, architectures, and transport protocols and also control the flow of traffic within the network. All wireless networks make use of waves in the electromagnetic spectrum range. For example, Wireless local-area networks (Wireless LANs) make use of high frequency electromagnetic waves to transmit data. Modulation and demodulation of the radio waves used to transmit data occurs at the transmitter and receiver respectively. They operate in the industry, scientific, and medical (ISM) radio bands and unlicensed-national information infrastructure (U-NII) bands (2). The networks are often connected to routers in order for them to access the internet. Wi-Fi has the potential to let anyone with a computing device connect to the internet at impressive speeds without the need. Wireless networks also use the Open System Interconnect (OSI) reference model in the transmission of data. The manner in which this reference model applies to wireless networks is similar to

wired networks with some differences in the data link layer where wireless networks coordinate access by data to a common air medium and also deal with errors which occur due to the inherent nature of the wireless medium. At the Physical layer, the data is transmitted in the form of radio waves.

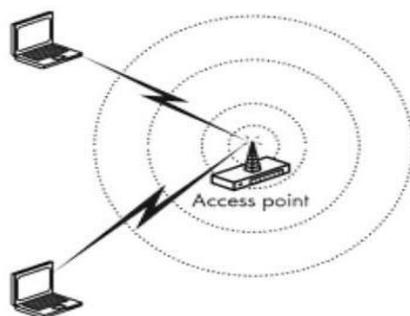


### The OSI protocol stack and wireless communication

#### What we need Build A wireless Network

Before a wireless network can be built, it is important to run a site survey. While this step may be ignored when implementing a small wireless network, it is of extreme importance when building a large wireless network. This is because wireless networks operate at the same frequency band used by other equipment such as garage-door openers and microwave ovens and avoiding interference from such equipment’s importance if the goal of reliable communication is to be achieved by the wireless network. Some researchers note that the largest investment cost in setting up a wireless network is the cost of the physical site location and this deployment is an evolutionary process since location the network may need to adjust so as to support an increasing number of users and satisfy the demand for increased capacity and better quality of service (3). Large networks should be built with manageability and reliability in mind since they may grow to a point where the network administrator is unable to effectively manage them.

There are a number of hardware and software components that are required in implementing a wireless network. One integral hardware device is an access point which is the device linking the wireless network to a wired LAN. Wi-Fi to access the device that transmits and receives the signals which are used for communicating between the computing devices in the network. Wireless access points have varying capacities and the size chosen is dependent on the speed desired in the network. The device should be placed at a central location and at a high vantage point in order to avoid obstacles and ensure that as many users have access to the network. There are a number of significant factors that one has to consider when acquiring the hardware for the wireless network. Interoperability of the equipment is an important factor if the network is to support all the available protocols (such as 802.11a/b/g). The range which protocols (such as 802.11a/b/g). The range which the network is expected to span is also an important in the range of equipment.



#### Access point

In most cases, wireless networks are also connected to the internet. A router which is a device that enables a single internet connection to be shared by many computing devices on the same network is applicable in such a scenario. The range personal networking devices that can access the wireless networks is great and it includes; laptops, personal digital assistants, tablet PCs, and pocket PCs. All the devices accessing the network need to be equipped with an operating system that allows for communication across a wireless network. Wireless access points and the client devices that are connected to them must be properly configured in order for them to operate a TCP/IP network. The wireless clients to a network receive their configuration details from a DHCP which gives the devices their IP addresses, default

gateways, and subnet masks. In cases where the administrator wishes to greatly restrict the users, the IP addresses may be imputed manually. Such a move would obviously be very labor intensive and unrealistic for a wireless network that serves a significant number of users.

### Wireless Technologies:

There are a myriad of wireless technologies and they differ in the amount of bandwidth they provide as well as the distance over which the nodes in the network can communicate (2). observes that wireless technologies also differ in the part of the electromagnetic spectrum that they use and the amount of power consumed. To provide physical connectivity, wireless network devices must operate in the same part of the radio spectrum and two wireless cards therefore need to be configured to use the same protocol on the same channel in order for communication to occur. There are four prominent wireless technologies which are; Bluetooth, Wi- Fi, WiMAX and 3G cellular wirelesses.

#### i. Bluetooth

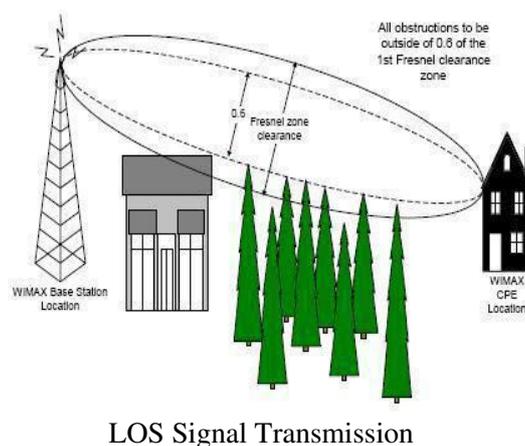
Bluetooth (IEEE 802.15.1) is the technology that is employed to undertake short-range communication between notebook computers, PDAs, mobile phones and other personal computing devices. The technology is more convenient than connecting devices with a wire to communicate. Bluetooth operates in a license free band at 2.45GHz and the communication range is about 10m and due to this short range, the technology is sometimes categorized as a personal area network (PAN) (2). A major consideration with Bluetooth technology is power usage and typically, the technology provides speeds of up to 2.1Mbps with low power consumption.

#### ii. Wi-Fi

Wi-Fi stands for wireless fidelity technology and the term is commonly used to describe a wireless local area network based on the IEEE 802.11 series of standards. The IEEE 802.11 standards resolve compatibility issues between manufacturers of wireless networking equipment by specifying an "over the air" interface consisting of "radio frequency technology to transmit and receive data between a wireless client and a base station as well as among wireless clients communicating directly with each other" Wi-Fi describes a family of radio protocols which include 802.11a, 802.11b, and 802.11g. 802.11b is the most popular wireless networking protocol in use and it uses a modulation called Direct Sequence Spread Spectrum in a portion of the ISM band from 2.412 to 2.484GHz. The maximum speed offered by this protocol is 11Mbps with usable throughput of up to 5Mbps. 802.11a is a protocol ratified by the IEEE and it uses a modulation scheme called Orthogonal Frequency Division Multiplexing (OFDM) with a maximum data rate of 54Mbps. It operates in the ISM band between 5.745 and 5.805GHz. The frequency range used by this protocol is relatively unused which makes interference rare.

#### iii. Wi-MAX

A popular form of broadband wireless access for fast local connection to the network is WiMAX. WiMAX technology has a typical range of 1-6 miles but the technology can span a maximum of 30 miles which has made the technology classified as a MAN. This specification has gained great success in the provision of internet access and broadband services through wireless communication systems. WiMAX has a high capacity which makes it efficient in data transmission with speeds of up to 70Mbps being provided to a single subscriber station. The original WiMAX physical layer protocol is designed to propagate signals at a frequency of 10-66 GHz and the technology is able to provide both line of sight coverage and optimal non line of sight coverage as well.



The components of a WiMAX include; a Base Station, Subscriber Station, Mobile Subscriber and a Relay Station. The Base station connects and manages access by the devices in the network. This component is made up of multiple antennas pointed in different directions and transceivers which are necessary for the wireless data network communication. A subscriber station is a fixed wireless node which communicates with the base station and forms a link between networks. A mobile subscriber is a wireless node that receives or transmits data through the Base Station while the relay station is a Subscriber Station whose purpose is to retransmit traffic to the relay stations or subscriber stations. A user can access the network so long as they do not exceed the threshold speed which is normally valued at 120km/H. This property of the technology allows for portability since the user can traverse a significant area which is covered by multiple base stations without having to interrupt their current session.

#### iv. Cellular Networks

While mobile phones have gained overwhelming prominence in the past decades, mobile phone networks were introduced as far back as the early 1980s and this technology was able to provide access to the wired phone network to mobile user(4,5). The area of coverage by the cellular wireless network can range from a few hundred meters to a few kilometers in radius. In each cell, there is a base station which is connected to the wired network and which allows the mobile devices in the range to communicate with each other.



**Cellular Transmission Towers.**

#### **Advantage of Wireless over Wire Technology:**

Wireless networks have a number of significant advantages over wired networks. To begin with, it is relatively easier to set up a wireless network infrastructure that it is to make a wired one. This is because the physical devices necessary for wireless networks are less than for wired networks. In installing a wired network, one would need to lay out the cables to connect the devices and this process is not only expensive but also labor and time intensive. Wireless networks require an access point and once the other devices have been properly configured they can operate. Another additional merit of wireless networks is that expansion of an existing network is easy since connectivity is already available within the range of the access point. The ease of deployment of wireless networks makes them economically attractive for most organizations since the capital investment of implementing these networks is not as intimidating as that required for elaborate wired networks. With the wide success of wired LANs, the local computing market has made a steady shift towards wireless LANs which offer the same speeds as wired LANs.

#### **4. USING WIRELESS TECHNOLOGY IN EDUCATION AND TRAINING**

Wireless networks have had a profound impact in the area of schools where the exchange of data was previously unattainable due to the complications associated with wired networks. The education field has benefited from the growth of wireless technology and the cost effectiveness of this technology. Before wireless networks were feasible, the education area suffered from the inherent setbacks of wired networks such as a lack of mobility, the complexity of deployment and difficulty in expanding the network.

There are a number of significant merits of wireless communication in school educational systems. The members of the educational institutes want to access the network for wide ranges of purposes and from various locations. Wireless networks can be less expensive to implement in a school setting than wired networks are. For instance, establishing a wireless LAN in the school may only require the administration to provide the basic connectivity. The users will bring their own laptops and therefore save the school money that would have been spent on buying computer

hardware as well as Ethernet drops and power outlets. each classroom can be afforded access to the network without need for any major renovations as would be the case if wired networks were to be implemented. All that is required is the placement of access points at strategic points in the classroom buildings. The students will then be able to access the network using their own personal computing devices without incurring additional costs to the schools.

## 5. CONCLUSION:

This paper set out to discuss wireless networks which are increasingly becoming preferred over wired networks by many users. The paper began by offering an overview of networking and then proceeded to define wireless networking and discuss the various technologies that are used. From the discussions provided in this paper, it is clear that wireless network solutions are increasing in popularity as they become more affordable and are adopted by more people. This paper has elaborated how wireless networks provide freedom from place restriction, scalability and flexibility. The most popular technologies are; Bluetooth, Wi-Fi, WiMAX and Cellular networks. The paper has confirmed that the mobility of wireless networks is their most desirable characteristic. It has been noted that in spite of their merits, there are a few significant issues with wireless networks which are primarily: quality assurance and security issues. Wireless Links are noisier and less reliable than wired links due to the interference that occurs as the signals are transmitted.

Engaging in site surveys before setting up a wireless network can help to mitigate this issue. Using strong encryption standards and can resolve the security issues inherent with wireless networks.

## REFERENCES:

1. Chenoweth, T Robert, M & Sharon, T 2010, "Wireless Insecurity: Examining User Security Behavior on Public Networks", *Communications of the ACM*, 53(2): 134-138.
2. Zhang, P 2009, *wireless Networking complete*, Morgan Kaufman, basting.
3. Ganesh, R & Pahlavan, K 2000, *Wireless Network Deployments*, Springer, Boston.
4. Kumar, A & Manjunath, K 2008, *Wireless Networking*, Morgan Kaufmann, Boston.
5. Jordan, R & Abdallah, C 2002, "Wireless communications and networking: an overview", *IEEE Antenna's and Propagation Magazine*, 44 (1): 185-193.

# INTERNET OF THINGS RESEARCH ON E-COMMERCE

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## **ABSTRACT:**

*The world's technology is increasing dramatically whereby people's consumerization of these technologies are also increasing, and this happens due to the rapid replication of the smart devices that make our daily activities easier and accurate. Basically the form of communication over the internet is human-human, Human-Things and now we are focusing on the communication between thing-thing (Also known as Machine-Machine or M2M). With the advent of this technology, it will transform the internet to become the Internet of Things (IOT). In the IOT technology application, there are three important aspects, such as e-commerce inventory, logistics, payment. In information technology, IoT is the new revolution after internet and mobile network. IoT-enabled devices uses internet to exchange data with each other thus, helping retail and e-commerce businesses to efficiently carry on their operations. In this study the applications of IoT in e-commerce businesses has been discussed. Also this paper explains the way in which the Internet of Things can be integrated with E-Commerce.*

**Keywords:** Internet of Things, e-commerce, Challenges.

## **1. INTRODUCTION:**

Internet of Things (IoT) also known as Internet of Objects connects billions of objects, which include buildings, air conditioners, coffee machines, washers, cars, Air planes, animals and people as well. According to Cisco (2015). The IoT connects things and people on an unprecedented scale; Cisco predicts that, although so far in 2015 more than 99% of things in the physical world are not connected, by 2020 the number of internet-connected devices and objects will reach 50 billion. With the mixing of physical world and information world together. The future technology can be predicted that the communication is not going to be people communicating to people; it's not going to be people accessing information. It's going to be all about using machines to talk to other machines on their behalf. We are moving towards a new era of ubiquity in terms of technology, we are entering the Internet of Things era in which new forms of communication among human and things, and between things themselves will be recognized (Tan, 2010).

## **HISTORY OF IoT:**

In the mid-1990s, Kevin Ashton, the father of the term "Internet of Things," was a brand manager at Procter & Gamble (P&G) London. When he visited P&G's Cosmetic retail stores, he found out that one type of lipstick always appeared to be out of stock.

This was a paradox, because, although P&G's inventory system showed that a lot of the lipstick was in the retail stores' warehouses, no one could find it. About the same time, Ashton met a manufacturer of a tiny radio-featured chip, an early implementation of the radio frequency identification ("RFID") chip. Ashton had the idea of attaching the tiny chips to products, thereby allowing sales staff to identify both the presence and precise location of an item in inventory by using a wireless RFID reader. P&G sponsored Ashton in establishing a research center, the Auto-ID Center, to explore how the RFID technology might enhance inventory management. In one of his P&G presentations in 1999, Ashton coined the term "Internet of Things" (Maney, K. 2015).

## **2. LITERATURE REVIEW:**

IoT applications are proliferating dramatically, this will make these applications to become more sophisticated, many of these new applications will intimately involve humans human and things will operate synergistically. If we look at the existing smart devices example, Smartphones, Smart Cars, Smart homes, Smart Cities etc. we can strongly predict that the future technology will transform our daily activities to handle by machines.

## **3. E-COMMERCE:**

According to Kenneth Laudon and Carol Traver (2015). In their latest defined e-commerce, as commercial transactions conducted over the internet, by using websites and mobile applications to facilitate transactions among manufacturers, merchants, retailers and customers. The major e-commerce trends in 2014 and in 2015 are mobile and social e-commerce; mobile e-commerce platforms and social networks that provide search, advertising and payment services will create another e-commerce revolution (Kenneth Laudon et al. 2015).

E-commerce is currently one of the most important aspects emerging on the Internet. As mobile devices became more popular, there is a rapid increase in the adoption rate of internet in recent years, a large number of online shoppers

have witnessed a steady growth. Since more and more businesses move sections of their operations onto the Internet the boundaries between "conventional" and "electronic" commerce blurred. E-commerce has evolved over the years like any digital technology or consumer-based purchasing market. With the rise of sites such as Facebook, Twitter and Pinterest, social media has become an important driver of e-commerce. Recent survey shows that the e-commerce sales will reach \$27 trillion by 2020.

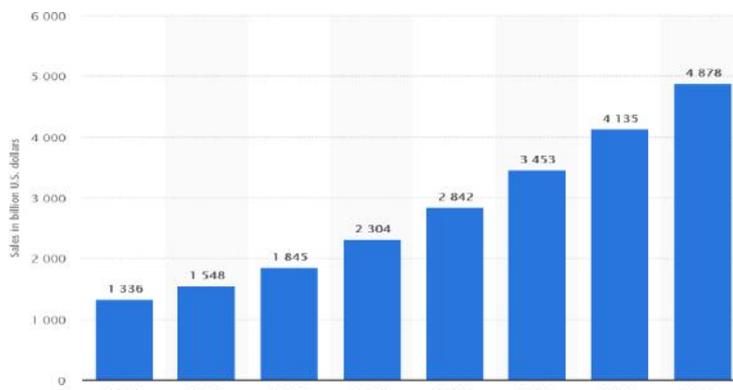


Fig 1.1: E-Commerce sales worldwide from 2014-2021

IoT devices will help e-commerce businesses streamline their operations. In broader terms IoT refers to the connection of devices with internet so that those devices can exchange data within themselves. It blurs the gap between physical world and computer-based systems resulting in improved efficiency, accuracy and economic benefit. IoT with its amazing efficiency and simplicity has augmented the growth of e-commerce sector and has impacted millions of lives. IoT is driving innovation and new opportunities by bringing every object, consumer and activity into the digital realm. The leading businesses are making similar changes within their enterprises by digitizing every employee, process, product and service. The back-end of business management has seen the greatest impact from IoT. Internet connected devices have drastically improved the entire supply chain process—from inventory management to delivery. This technology allows inventory management to occur in real time reducing person-hours all while providing more accurate information. The growth of connected devices coupled with improved, less-expensive technology platforms and adoption of common standards would increase the rapid growth of IoT-enabled capabilities across industries.

#### 4. BENEFITS OF IOT IN E-COMMERCE:

IoT-enabled devices uses internet to exchange data with each other, helping retail and e-commerce businesses to carry out their operations effectively. By 2020 the retail spend on the Internet of Things is expected to reach \$2.5 billion. More than 70% of the retailers are ready to adopt the Internet of Things to improve their consumer experiences worldwide. The IoT movement offers e-commerce businesses and retailers opportunities in the following critical areas: inventory management, logistics, customer experience, marketing opportunities, the supply chain, and new channels and revenue streams.

##### A) INVENTORY MANAGEMENT:

IoT devices will help ecommerce businesses streamline their operations. For example, the tracking and handling of inventory will become easier with the movements of connected products now traceable in real time. Such data can be used to notify business owners of low and slow-moving stock. With the help of IoT, it becomes easy to keep track of inventory. IoT sensors and RFID tags make management of inventory in real-time possible, streamlining the entire flow. They improve the monitoring and tracking of inventory items, reducing human errors in reordering items. Information like product type, manufacturer's name, the expiry date of the items and their batch IDs can be automatically stored in the system without human intervention. Smart shelves are useful in reducing customer dissatisfaction due to out of the stock products. They can track the number of products that have been sold and can place automatic orders as soon as the stock reaches reorder level. IoT not only helps in optimizing inventory and reducing shortage but also eliminating over-stock of items in the warehouses. Temperature-monitoring sensors can be used to check the optimum temperature for perishable products and send alerts whenever needed. There can also be sensors that examine the forklifts in the warehouse for predictive maintenance to reduce the loss of productivity.

##### B) LOGISTICS:

By integrating IoT with e-commerce logistics, tracking stock in the warehouse or customers and their interest list can be made easier. Radio Frequency Identification (RFID) and Global Positioning System (GPS) technologies allow tracking every stage of an item's journey, reporting how fast it's traveling, who the driver is, or even the weather.

This information can be used to automate much of the shipping process, and ensure there are no missing shipments or unforeseen delays. Here IoT technology can be used to enhance the customer experience by updating the delivery status of the item they have purchased like sending automated messages informing customers of the status of their package. For example, a text shall be sent to the customer a couple of days before the item will arrive, and then another couple of hours before, so they won't have to worry about missing the delivery. The sensors can be included according to the needs. A supermarket delivering frozen goods might want to include temperature sensors to ensure the package is staying cool, and to alert the driver to take action if it's getting too warm. IoT ensures the smooth and continuous flow of goods from one location to another as the success of any e-commerce business relies on seamless and uninterrupted supply chain management. IoT allows tracking of items from their production until consumption. With IoT-enabled detectors, retailers can easily manage the route and speed of their shipped products too. Radio frequency identification (RFID) and global positioning system (GPS) techniques help merchants recognize a product in transit and deliver particular information about its location, temperature and much more.

### C) CUSTOMER EXPERIENCE:

The Internet of Things connects ecommerce businesses with customers like never before. For example, warranty and malfunction data can be automatically sent back to retailers to ensure a swift response - sometimes before the user is even aware a problem exists. Every experience is becoming a digital experience and these experiences are combined together called the "Internet of Me," which describes an interconnected environment in which businesses are building products and services to be designed for, created for, and specifically centered on the individual. IoT enables e-commerce businesses to differentiate themselves from their competitors in front of their clients. For example, Walmart uses IoT to get insights about the products which are popular on social media. This innovative technology allows retailers to deliver a comprehensive shopping experience to customers with a high-level of personalization, leading to clients' satisfaction and engagement. The location-based beacon technology allows retailers to interact directly with customers as they enter the online store.

IoT devices enable the retailers to collect consumer data including their habits and behaviors. On average, a retailer employing IoT technology may be able to aggregate a higher amount of consumer data than their competitors, and they can use that data to engage with their customers. Retailers aren't limited to mining data from their own customers. Walmart has already begun implementing IoT technology to analyze social media data, and see what products are trending. With that information, they can effectively market to specific segments of their customer base. The retailer knows the shopping histories, habits, and preferences of their customers and can create marketing campaigns at almost the individual level.



Fig: Customer Data

### D) SUPPLY CHAIN MANAGEMENT:

An interrupted and efficient supply chain management is crucial to carry on operations of e-commerce businesses successfully. IoT ensures that goods move from one place to another smoothly. It enables tracking of goods right from the production stage to delivery.

The "Industrial Internet" describes how companies are using cloud, mobile, big data and other technologies to improve operational efficiencies and foster innovation. It has been estimated that by 2030, the combination of the

Industrial Internet and IoT devices could add more than \$14 trillion to the global economy. Data can be sent directly from the products to the retailer, helping to identify issues or malfunctions perhaps before the customer is even aware of them. Data visualization technologies help the employees to track products across the supply chain quickly.

#### **E) MARKETING:**

There are many surveys that profess the importance of mobile phones to the purchasing process. But as long as mobile sites don't deliver what user wants, it's clear that most people would go to their main computer to make any final decisions. The Internet of Things detect devices that belong to the same individual, allowing to market to the individual rather than the device, while still offering the correct ads for the platform. In fact, customer data is one of the core uses of IoT for e-commerce — improving everything from personalization to segmentation.

The prevalence of IoT devices in society enables businesses to gain a greater insight into their customers' behaviour than ever before. The daily routines of target demographics, their shopping histories, product preferences and buying habits can all be tracked and used to tailor more relevant marketing campaigns.

#### **F) REVENUE STREAMS:**

The true power of the Internet of Things is that it creates opportunities for retailers to develop new revenue streams or, in some cases, build entirely new channels. Home appliances, cosmetics, home and vehicle security, clothing, comfort products, even health and wellness products are all becoming part of the Internet of Things ecosystem. Retailers in home improvement or consumer electronics sectors not only can drive more sales of these connected devices. Home Depot already stocks more than 600 "smart" products in its stores. By becoming an integration platform, retailers start taking further advantage of the wide array of connected products.

#### **G) DYNAMIC PRICING:**

Before IoT started to catch on, out pricing the competition meant constantly monitoring their promotions and marketing tactics, developing counter-campaigns and using every tactic in your arsenal to draw attention to your brand as the better choice. Businesses now have the option to skip this tedious process and beat the competition from moment to moment by using dynamic pricing models. Instead of coming up with a future sale to outshine your competitors, dynamic pricing with IoT allows you to update the prices on your e-commerce platform and even in your brick-and-mortar stores in real time to ensure you're always offering the best deals and providing a unified experience across platforms. Dynamic pricing can also communicate greater value by responding to demand and setting prices to reflect what consumers are willing to pay for the perceived worth of a product or service.

#### **H) PROMOTIONS:**

Flexibility in pricing also extends to the individual customer experience. Today's IoT technologies include "smart" shelf tags, also called "e-tags," installed in stores to provide targeted promotions to customers based on their past buying habits. Using data regarding what a customer has purchased both in-store and online, these tags use location-based signals to light up and attract attention to items the individual is most likely to want to buy. Your business can use "smart" technology to deliver special promotions via push notifications. Purchases from those customers — both in-store and online — can be more easily tracked. With a clearer picture of customer behavior, it's easier than ever to deliver the smooth omnichannel experience consumers desire.

#### **I) IOT IMPLEMENTATION FOR E-COMMERCE:**

The future of e-commerce will be towards the development of diversification and convenient, the competition will become more intense. If IoT technology is used in various aspects of e-commerce, then the efficiency of it will be increased for a greater extent. Its operating costs will be reduced, customer experience will be improved. IoT is combined with e-commerce and a new IoT e-commerce system has been formulated (Han and Li, 2012).

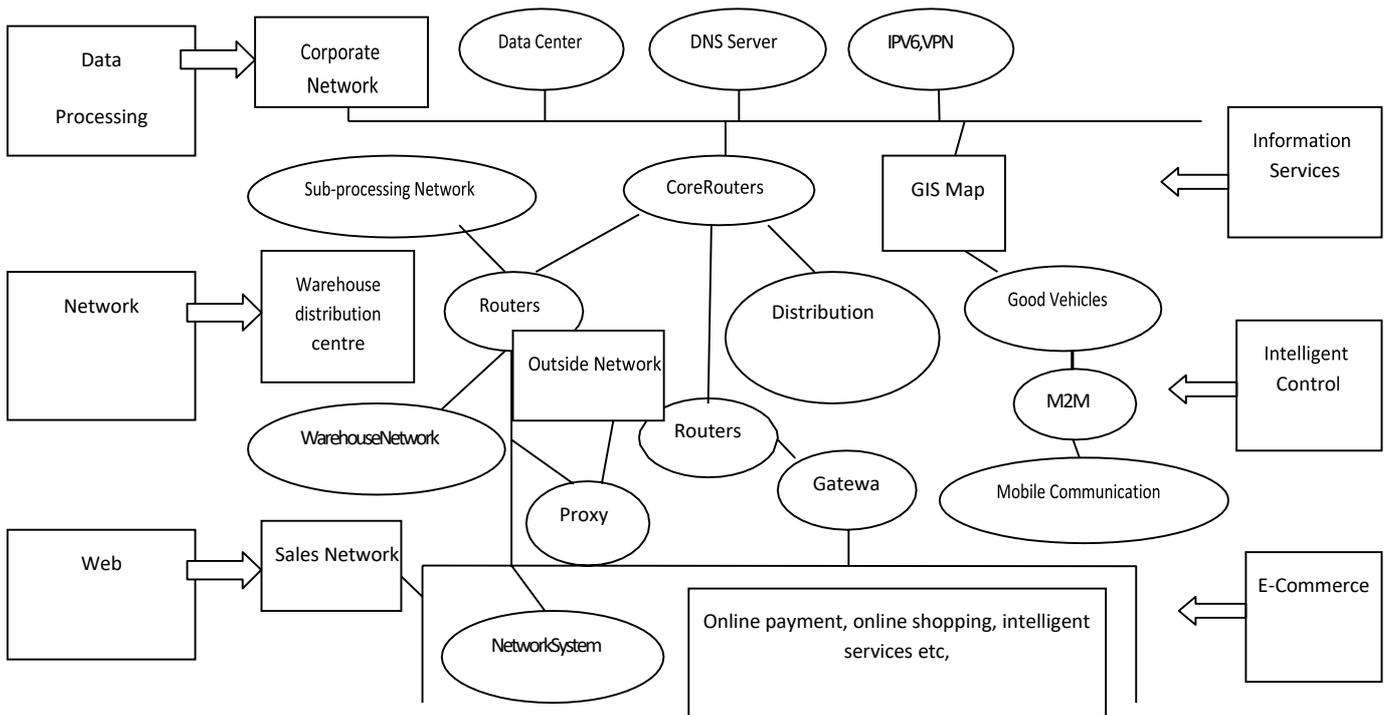


Fig: IoT e-Commerce System

## 5. CONCLUSION:

Information technology is the key factor for the development of post-industrial society. The businesses in this modern era are networked and use information technology to survive in a highly competitive environment. The growing phenomenon of globalization, liberalization and privatization has been immensely influencing the higher education commerce in particular. The technological revolution has further provided new dimensions.

The IoT technology is going to expand drastically over the next few years with an estimated 30 billion IoT devices in use by 2020. This growth is going to have a tremendous impact on e-commerce retailers and online shoppers. If IoT technology has been utilized in businesses, it will result in massive benefits for both their customers and their bottom line. For developers and designers, the fundamental essence of work lies in innovation. Without innovation, there is no existence in an industry that grows changes, forms, and reforms faster than any other. A great user experience is essential for ecommerce websites, but in the near future, when the IoT becomes even more prevalent, web developers will have to work on ways to harness the increased data on offer. This will eventually lead to more intelligent, perceptive websites which are capable of offering personalized browsing experiences.

## REFERENCES:

1. V. Zwass, "Structure and macrolevel impacts of electronic commerce: from technological infrastructure to electronic marketplaces" <http://www.mhhe.com/business/mis/zwass/ecpaper.html>
2. "Review of Natural Language Processing Research", Erik Cambria, Bebo White, IEEE Computational Intelligence Magazine, May 2014.
3. Aspect-Oriented Opinion Mining from User Reviews in Croatian", Goran Glavas, Damir Korenicic, Jan Snajder, 4th Biennial International Workshop on Balto-Slavic Natural Language Processing, pages 18–23, Sofia, Bulgaria, 8-9 August 2013.
4. "Thinking of Coordinated development of E-Commerce Economy Entity and Internet of Things Economy", Lihua, International Journal of u- and e- Service, Science and Technology, Volume 6, Number 6, 2013.
5. The Internet of Things: The Future of Consumer Adoption", Acquity Group's 2014 Internet Of Things Study, 2014.
6. Internet of Things in Logistics - A collaborative report by DHL and Cisco on implications and use cases for the logistics industry", Matthias Heutger, Understanding the Internet of Things, 2015.

# Introduction to an Ideal Workplace Culture: The Keys to Unlocking People Talent

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## Abstract:

*Organization's success is directly co related to the performance of its people. Over time we've seen change in working pattern and dealing environment. From Conventional closed offices to the open plan offices to co-working spaces of today there's change in working environment. The bulk of this is often being done to encourage the workers and increase their efficiency. Co-working spaces are commonly to facilitate communication and interaction between co-workers, promoting workplace satisfaction and team work effectiveness. Humans typically wish to work with people, not in isolation, going back as far as hunter-gatherers. Even with the mobile revolution, people still want to people. When they're not, they feel isolated socially. And once they feel isolated socially, they start to feel disconnected from their organizations and from their work. Instead of the work environment just being an area to deal with people, the work environment has evolved to be an area to inspire and facilitate deeper level of collaboration, and where people have access to technologies which will actually help augment people's interactions. Research shows that well designed workplaces can facilitate serendipitous collisions of individuals and concepts, accelerating the flow of ideas and innovation. He is within the industry since 14 years and describes the office space as a source of an idea which completely depends on the collaborative spaces and believes office should be formed as a community. To make this community, we'd like interaction within the coworkers and such are often formed through social spaces in offices. In an office space, coworkers are unacquainted to every other and hence none wants to disturb anyone and to encourage interaction, the social workplaces are preferred. Gone are the times when the workplace was a static environment, where employees arrived to perform an equivalent routine task at an equivalent spot every day.*

## 1. INTRODUCTION:

Today's workplaces got to be varied enough to accommodate a huge set of needs while also having the ability to vary rapidly. Moreover, the workplace must reflect the requirements and values of the organization and its people. The intentional act of intersecting with people with diverse talents, interests and expertise to concrete through collaboration can happen in co-working spaces.

What might sound like random, one off conversations often because a series of interactions where relationships are deepened and concepts for collaboration emerge? These accidents are something coworkers want in co-working spaces, so these spaces should be such employees can have opportunity for interaction. Such spaces are often café, library, communal zones or an occasion. This shift within the working trend is happening everywhere the planet and Gurgaon is among one among them. Gurgaon or now called Gurugram, "the millennium city of India", has grown rapidly, welcoming multinational companies and therefore the staff. Being the satellite town of Delhi, it became easier for the Gurgaon to deal with the large companies and therefore the migrants. It's become now a hub for the millennial with better job opportunities. They predecessors of 'Generation of Y' and are the chief wage earners in India and share 67% of working age population. The present shift in working trend of offices is seen to satisfy the requirements of millennial. But does this trend actually meet the necessity of the millennial of Gurgaon or is simply an adaptation of the Western culture (Kurian 2017).Hence, this adapting trend of the co-working spaces from western countries to Gurgaon creates a requirement to review the gap that responds to the evolving workplace dynamics counting on the situation and therefore the users. As we all know everything can't be quantified as black and white, similarly to make a contemporary workspace different aspect like user preferences, context of the place, and whereabouts of the space should be considered. This research is to know, is the co-working spaces liable and do they quantify the requirements and requirements of the users and if the concept of collaboration, interaction and group action during a working space, is simply a photocopy or is an analyzed adaptation that lubricates the organization's needs and goals. The tactic conducted is thru the first case study of Whizzo Café and Co-Working and Go Hive Co-Working in both the qualitative and quantitative aspects. The survey are going to be conducted for the millennial working within the same offices and to know their idea of a co-working space and therefore the study of an equivalent space so as to work out if the wants are fulfilled or not. So as to unravel or mitigate the aforementioned problem statement the subsequent research question were carried out:

- How are the millennial of Gurgaon working in co-working spaces influenced by Coworing space?
- How effective may be a Co-working Space of Gurgaon for a millennial in comparison to a standard office?

## 2. LITERATURE REVIEW:

### Evolution of Co Working Spaces

The workforce has long experienced a shift far away from traditional norms and co working is simply one among the various trends revolutionizing and challenging the notion of ‘how things should be.’ From traditional working style, where the workers sit in their private walled offices, to open plan office, where all the cubicles are planned in an open space, to co-working spaces, there's a gradual shift in working style and every one of this is often for the workers and their comfort, (Joseph, 2016). Eventual goal of a corporation is to achieve success which may be attained by a coworkers' performance and their performance are going to be better once they are satisfied with their workplace. And hence, for the users this shift is seen. Gone are the times when users were happy to possess their own cubicle in order that they could work on their desk peacefully, today they need to interact and add collaboration for such they have both the spaces which are communal and social in nature and isolated and silent also.

It set a trend within the hacker-community and introduced the notion of ‘hacker spaces’: Physical, community-oriented spaces where people with an interest in computers could gather to collaborate and add an open-environment (Joseph, 2016). While this model deviates from the social workplace we all know of today, hacker spaces are viewed by some as (perhaps inadvertently) setting the inspiration for today's collaborative workspaces.

But it had completely different definition and vision for the term than what lies in our recollection today. For DeKoven, co-working was wont to describe the phenomenon of “working together as equals,” instead of the “working together, yet separate”. He was exploring a way that would break down hierarchal boundaries and facilitate collaborative work between individuals perceived as equals (Braun, 2016). While DeKoven could have initially coined the term and brought it to everyone's consciousness, we ultimately interpreted it during a very different sense than he had envisioned.

The same year that DeKoven delivered to life the notion of co-working, 42West24 sprung onto the City scene. The space offered a satisfying work atmosphere with flexible membership options for teams and a private seeking a workspace. But a key element of today's notion of co-working was missing: no emphasis was placed on communal spaces which define co-working space (Deskmag, 2011). They rarely organized community events and sometimes paid attention on inner networking. Still, the opening of the space was considered a breakthrough within the working trend. In 2002, two Austrian entrepreneurs began to place an end to performing from home and to make an area where like-minded people could gather to figure and make collaboratively.

And in 2005, Brad Neuberg launched a politician co-working space, fixing an area he originally mentioned as a “9 to five group” in San Francisco. He then launched the San Francisco Co-working Space, and later, the Hat Factory. Co-working wasn't successful initially but in time, interest sparked and co-working caught on. And since 2006, the quantity of co working spaces have doubled per annum, as demand continues to steadily grow. The term co-working was first observed as a trend on Google in 2007 which made the co working official. Since then, the search volume for ‘co-working’ has increased and therefore the traction started everywhere the planet. And, a politician page was published on Wikipedia for the fast-growing workplace trend. Clearly, co-working was catching on, and it had been doing so fast. And every one this was due to its social and communal nature. Here people could collaborate and interact with the opposite individuals and luxuriate in their workspace.

### 3. Understanding the Concept of Effective Workspace:

‘The term “effective” is often defined as being successful in producing a desired or intended result. In the same way, effective work-environments, in effect, gather to the physical locations and immediate surroundings, including office culture and office collaboration between colleagues, which supports within the attainment of business relevant objectives. As businesses have different needs, operate in several industries and have different functions (types of jobs to be completed), its imperative for a business management to require into consideration. Research conducted by found that there are a minimum of seven keys ‘practical factors’ which should be considered before any work-environment is formally implemented:

- The quantity of noise other colleagues' conversations will cause,
- The amount of potential general distractions which will be caused by colleagues,
- The degree of enclosure by walls and/or furniture,
- The extent of visual privacy,
- The proximity between colleagues from one workstation to subsequent,
- The quantity of ground noise which will be heard at workstations,
- The dimensions of employees' personal workspace, and
- The function being performed by employees.

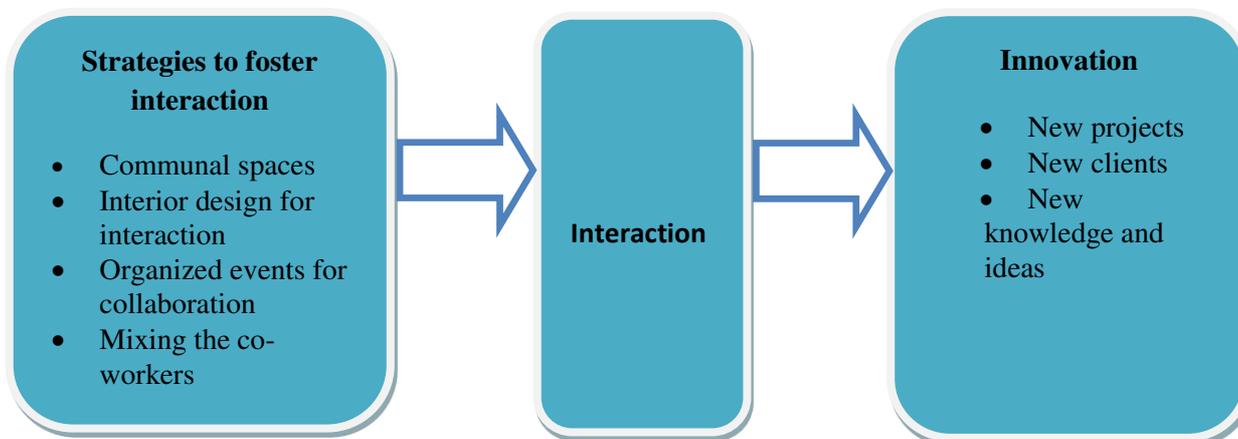
Often the work environments should be designed for both functionality and elegance as achieving an ‘optimum mixture’ for the latter should contribute towards employee satisfaction (Dansoh, 2006); leading to better employee productivity and, eventually, within the attainment of business objectives. The last-mentioned are often viewed as ergonomics. Better put, ergonomics is that the scientific discipline concerned with the understanding of the interactions among humans and other elements of a system, with the most intent to optimize human well-being and therefore the overall performance of the actual system (Radjiyev et al., 2015).

#### 4. Co-Working Space Strategies:

##### An area to interact and innovate

The main agenda of a co-working space is to make an interaction between the users and enhance their interaction into innovation. The co-workers during a co-working space aren't known to every other a bit like the other office space and are also from different profession which creates a niche between the professionals. They could not have a standard interactive platform and but since they want to possess a social interaction, they join co-working spaces. Hence, it's the responsibility of a co-working space to return up with the strategies to reinforce the interaction between the co-workers. Such interaction takes place by offering communal shared spaces. Collaboration and communication enabling spaces may be a design characteristic of a co-working space which enables the formation of social networks and social interaction. When co-working spaces have shared physical spaces and spatial arrangements that promote interaction this may support people's motivation, ability, and opportunity to share knowledge and experiences. Link the physical environment to collaboration, and concluded that spatial layouts offering better accessibility, visibility and short walking distances affect face-to-face interaction. Innovation is facilitated in co-working spaces through their social interaction. Social interaction contributes to innovation. Hence, it's important for the co-working spaces to support formation and nurturing of social interaction and collaboration (Olma, 2012).

Social interaction increases the prospect of data exchange between different people at co-working spaces. When such collaboration happens between the co-workers, innovation takes place. Co-working spaces foster network formation and it's an innovation marketplace. The social, collaborative environment of co-working spaces provides direct access to supplementary resources and capabilities necessary for successful innovation (Daft, 2006) because of the facilitated proximity of workers from different profession. They build a network between users which help find business opportunities counting on the ties formed between the users.



#### 5. CONCLUSION:

This paper is concentrated on the analysis of social impact of co-working, an emergent social phenomenon that's in constant evolution, on the millennial of Gurgaon. The increasing attention and number of studies about co-working depict it as an innovative phenomenon that leads to important and positive changes at different levels including working practices (Parrino 2013). Despite numerous studies a niche was found within the context of Gurgaon and it's millennial. Earlier work states that a lot of workers attend co-working spaces to join a community or to access a network which may be important for his or her business. Yet, both literature and our evidence suggest that co-locating people doesn't automatically cause interaction nor to innovation. Two co-working spaces in Gurgaon were analyzed and explored how they benefit their workers and 18 co-workers were interviewed to know the social impact of co-working. Co-locating people during a co-working space can help but applying the proper strategic tools can do the effect. From the case studies, the subsequent assumptions were made, Community Collaborate Change are three excellent, choice words wont to help define the social impact of a co-working environment.

They will freely use the kitchen facilities and lounge and hold events for other employees. A conscious crossing of the boundaries between members and staff is meant in an attempt to get an ‘at home’ vibe where you're relaxed and

inspired to interact and collaborate with each other. It is the very fine difference from traditional offices yet vital perception that sets co-working spaces apart from other services offices environments where start-ups, entrepreneurs and freelancers share work space without ever interacting socially or gaining information from one another and are encouraged to use the co-working. Also their diverse management techniques allow the users to figure in flexible hours and also some have diverse membership facilities, which is additionally a crucial feature and faithful a number of the most successful co-working setups. This diversity can ignite development between different disciplines.

#### **REFERENCES:**

1. Ashley Yost, Office Evolution: The New Age of 'Co working' Spaces, viewed 4 September, 2018.
2. Becker, F., 2000, 'Offices That Work: Balancing Cost, Flexibility, and Communication', New York: Cornell, University International Workplace Studies Program (IWSP).
3. Cara L. Duval, Kate E. Charles and Jennifer A. Veitch, 2002, 'Open-Plan Office Density and Environmental Satisfaction' IRC Research Report RR-150.
4. Björklund, T., Clavert, M., Kirjavainen, S., Laakso, M., & Luukkonen, S. (2011). Aalto University, Design Factory in the eyes of its community.
5. Daft, R. (2006). Organization theory and design. Engage learning.
6. Dansoh, A., 2006, 'Elements of comfort and satisfaction in the office workspace', Journal of Science and Technology, 26 (3), pp. 132-138.
7. Duncan, R., 2015, 'Rethinking the work space'.
8. Frels, B., Workplace Trends: Open Office vs. Traditional Office Plans, viewed 7 August 2018.
9. Heerwagen, J. H., Kampschroer, K., Powell, K. M., & Loftness, V. (2004). Collaborative knowledge work environments. Building research & information, 32(6), 510-528.

# Foreign Direct Investment: The Future of Multinational Enterprise

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## **Abstract:**

*FDI features a strong impact not only upon the economy of the investor country, but also upon economic and welfare of the host country fact, FDI has become an important source of external finance for the developing countries because it not only fulfills the ever-increasing requirements of various sectors of the economy but also promotes growth, even more through spillovers of technology, improved innovative capacity, and provides them effective marketing links in highly competitive world markets. Thus, FDI has become a crucial mechanism for global economic integration.*

## **1. INTRODUCTION:**

The Foreign Direct Investment earnings “cross border speculation made by a neighborhood in one reduced in an innovativeness in another economy, with the target establishing an enduring interest within the investee economy FDI is additionally described as “investment into the business of a rustic by a corporation in another country”. Habitually the speculation is into construction by either buying a corporation within the target country or by expanding operations of an existing business in that country”. Of economic reforms programmed in 1991, the investment scenario in India has been buoyant and moving upwards. The capital market has developed very vigorous and FIIs, distant speculation banks and asset management companies have shown increasing interest in investing in India.

The role of Foreign Direct Investment (FDI) within the up gradation of equipment, skills and managerial competences is now well acknowledged.

## **Foreign Direct Investment Policy:**

FDI under automatic route is permitted in most activities/sectors, except a couple of where prior approval of the govt. is required. Government of India welcomes FDI altogether sectors where it is allowable, particularly for development of substructure. Investment for fixing Special Economic Zones (SEZs) and establishing manufacturing units are also welcomed.

## **2. OBJECTIVES OF THE STUDY:**

- To know the position of FDI in Indian Businesses.
- To understand entry routes available for FDI in India.
- To distinguish FDI law rehearsal in India
- To understand top 5 investing countries and top 5 sectors attracting FDI.

## **3. STATEMENT OF THE PROBLEM:**

FDI are often defined as a cross border investment, where foreign assets are invested into the organizations of the domestic market excluding the investment in stock. It brings private funds from overseas into products or services. The domestic company in which foreign currency is invested is typically being controlled by the investing foreign company. Now, during the course of time, FDI has become an important part in every country more particularly with the developing countries. This is because of the following reasons:

- Availability of cheap labour.
- Uninterrupted availability of raw material.
- Less production cost compared with other developed countries.
- Quick and easy market penetration.

## **4. Forbidden Territories:**

FDI is strictly prohibited by the Indian Government within the following industrial sectors:

- Arms and ammunition.
- Atomic Energy.
- Railway Transport.
- Coal and lignite.

## 1. Clearance from Foreign Investment Promotion Board

A company engaged within the manufacture of things covered under Annex-III of the New Industrial Policy whose straight foreign speculation after a future Euro matter is likely to surpass 51% or which is applying a scheme not limited in Annex-III, would need to get prior FIPB clearance before seeking final approval from Ministry of Finance. But there is no restriction on the number of Euro-issue to be floated by a corporation or a gaggle of companies in the financial year.

## 2. Use of worldwide Depository Receipts

The proceeds of the GDRs are often used for financing capital goods imports, cost including domestic purchase/installation of plant, equipment and building and investment in software development, prepayment or scheduled repayment of earlier external borrowings, and equity investment in JV/WOSs in India.

## 3. Restrictions

Any investment from a far off firm into India requires the prior approval of the govt of India. Investment available markets and land won't be permitted. Companies may retain the proceeds abroad or may remit funds into India in anticipation of the utilization of funds for approved end uses.

## 5. Foreign direct investments in India are approved through two routes :

### 1. Automatic approval by Federal Reserve Bank of India

Investments in high-priority industries or for trading companies primarily engaged in exporting are given almost involuntary support by the Reserve Bank of India (RBI). The RBI accords automatic approval within a period of fortnight (subject to compliance of norms) to all or any proposals and permits foreign equity up to 24%; 50%; 51%; 74% and 100% is allowed counting on the category of industries and therefore the sectorial caps applicable. The lists are comprehensive and canopy most industries of interest to foreign companies.

### 2. The FIPB Route – Processing of non-automatic approval cases

Foreign Investment Promotion Board (FIPB) which approves all other cases where the parameters of automatic approval aren't met. Normal time interval is 4 to six weeks. Its approach is liberal for all sectors and every one sorts of proposals, and rejections are few. It's not necessary for foreign investors to possess an area partner, even when the foreign investor wishes to carry but the whole equity of the corporate. The portion of the equity not proposed to be held by the foreign investor is often offered to the general public.

## 6. FDI law practice India

At present, the foremost lucrative business sectors for FDI in India are, Infrastructure (Power, Steel, Railways, etc.); Telecommunications; Hospitality sector; Education; Retail; Real Estate; Retail sector, Petroleum and Petroleum Products; Biotechnology; energy, etc. The foreign direct investment in Indian business sectors can easily be made during a sort of ways, through the Governmental and Automatic Routes. However, the Joint Ventures are the foremost popular and preferred sorts of making investment in Indian industry:

Company Formation and Company Law services.

Establishment of Joint ventures.

Corporate and mercantile law services.

For creating all mandatory Compliances.

Drafting all requisite Contracts, Agreements, and other Documents.

Fixing Subsidiaries.

Tax Planning.

Project Finance.

Dispute Resolution.

Private Equity.

**Table 1: Top 5 Sector attracting highest FDI equity in flows in India**

Ranks	Sectors	2009-10 (April- March)	2010-11 (April- March)	2011-12 (April- March)	2012-13 (April- Aug)	Cumulative inflows (April 2000- Aug 2012)	% to total inflows (in terms of US \$)
1.	Services Sector	19,945] (4,176)	15,053 (3,296)	24,656 (5,216)	12,480 (2,280)	158,252 (34,633)	19%
2.	Construction Activities	13,469 (2,852)	4,979 (1,103)	15,236 (3,141)	3265 (601)	97028 (21,340)	12%
3.	Telecommunication	12,270 (2,539)	7,542 (1,665)	9,012 (1,997)	111 (20)	57,188 (12,572)	7%
4.	Computer Software & Hardware	4,127 (872)	3,551 (780)	3,804 (796)	1,032 (188)	51,149 (11,393)	6%
5.	Drugs & Pharmaceuticals	1,006 (213)	961 (209)	14,605 (3,232)	2,572 (487)	45,440 (9,682)	5%

**7. CONCLUSION:**

The fast and steadily growing economy of India in majority of its sectors, has made India one among the foremost famous and popular destinations within the whole world, for Foreign Direct Investment. India has been ranked at the second place in global foreign direct investments in 2010 and can still remain among the highest five attractive destinations for international investors during 2010-12 periods. Consistent with a recent survey by the United Nations Conference on Trade and Development (UNCTAD), India has conspicuously emerged out because the second hottest and preferable destination within the entire world FDI as a strategic component of investment is required by India for achieving the objectives of its second generation of economic reforms. But the present institutional system doesn't provide a mechanism for aggressive marketing of India as an FDI location. Therefore a favorable business environment is required to draw in FDI flow by providing hassle-free government procedures and most importantly, a degree of autonomy and freedom in various deciding process

**REFERENCES:**

1. Agarwal, S., and Ramaswami, S. (1992). Choice of foreign market entry mode: Impact of ownership, location and internalization factors, *Journal of International Business Studies*, 17, 1-26.
2. Aldrich, H., and Martinez, M.A. (2001). Many are called but few are chosen: an evolutionary perspective for the study of entrepreneurship, *Entrepreneurship: Theory and practice*, 25(4), 41-57.
3. Brouthers, L. E., Brouthers, K. D. and Werner, S. (1999). Is Dunning's eclectic framework descriptive or normative? *Journal of International Business Studies*, 30, 831-844.
4. Buckley, P.J., and Casson, M. C. (1976). *The future of multinational enterprise*. London: Macmillan.
5. Cantillon, R. (1755) *Essai sur la nature du commerce en general*, London.
6. Casson, M.C. (1986). *General Theories of the multinational enterprise: A critical examination*, In Dunning, J. H. (1988). *The Eclectic paradigm of international production: A restatement and some possible extensions*, *Journal of International Business Studies*, 19(1), 1-31.
7. Caves, R. E. (1971). *International Corporations: The industrial economics of foreign investment*. *Economica*, 38(141), 1-27.
8. Chanalert, A. (2000). *The Determinants of U.S. Direct Investment in Thailand: A Survey on Managerial Perspectives*, *Multinational Business Review*, 8(2), 82-88.
9. Covin, J. G., and Slevein, D. P. (1986). *The development and testing of an organizational-level entrepreneurship scale*. In *Frontiers of Entrepreneurship Research*. Wellesley, MA: Babson College, 628-639.
10. Schumpeter, J. A. (1942). *Capitalism, Socialism and Democracy*, Harper & Row, New York, NY.

# Entrepreneurship Development: Approach Towards Making Female Entrepreneur

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## **Abstract:**

*Entrepreneurship has been acknowledged by researchers also as policymakers together of the most drivers of economic process and development. Over the years, an excellent deal of research has been conducted on this subject. As research findings may in some cases be used either directly or indirectly to enhance or amendment management policies, having more high impact data available could convince be valuable in certain cases. The aim of this study is, therefore, to spotlight the importance of research on female entrepreneurs as a separate study field. Additionally, this text aimed to determine whether the amount of female entrepreneurship related peer reviewed articles appearing in leading entrepreneurship and management journals within the USA and Europe have increased over the decades. Results demonstrate that amongst the 14 leading management and entrepreneurship journals investigated; only one published quite 10 percent of its articles on female entrepreneurial and business management topics.*

## **1. Introduction:**

For centuries females have taken the rear seat in male oriented social systems. However, since the 1970s there has been a slow but sooner emerging new perspective that females may help unlock stagnating global economic growth. Entrepreneurship isn't a replacement topic and has been studied for hundreds of years by many well-known researchers during this field. However, it had been not until 1976 that the primary official research on female entrepreneurship (FE) was published by Eleanor Schwartz, "Entrepreneurship: a replacement Female Frontier" (Greene et al., 2003; McAdam, 2013). Despite this, little or no information and documentation regarding the contribution women make to entrepreneurship activity is out there. Furthermore, information regarding such entrepreneurship as a worldwide phenomenon is minimal.

Most of the info available reports only on business development as an entire and doesn't make regard to gender. Because gender studies became more advanced and influential over the past few decades, the importance of studying female entrepreneurship development as a separate research field is increasing. The present research on female entrepreneurship as a separate field of study is restricted thanks to females only formally getting into the sector of entrepreneurship in recent decades and since the literature on entrepreneurship was historically supported men. However, this gap has already been identified by leading experts within the field during the first 2000s. Their distinctive studies, however, merely investigated the amount of articles on this subject published in certain journals up to 2001. This study made use of a theoretical investigation by analyzing variety of leading management journals from 2002 to 2016 to work out the extent of articles published and whether the amount of articles has increased from the previous studies undertaken up to 2002.

## **2. The Soul of Entrepreneurship:**

While this is often particularly the case in developing countries with significant poverty and high unemployment rates, it also relates to developed economies because entrepreneurship is taken into account a driver of augmented economic process as in contradiction of festering development. Furthermore, female entrepreneurial activity has been accepted as an important a part of the economic profile of a rustic, as has the argument that empowering female entrepreneurs act as fuel for flourishing economies assert that females are getting essential change agents within the social and economic environments and are globally liable for making valuable contributions towards job and wealth creation and economic process.

Female enterprises being a growing phenomenon and comprising an interesting proportion of economic production in many economies, women still face tremendous challenges when it involves the expansion and expansion of their businesses. In some cases, even starting a business is often a challenge for a few females. Over the decades, many various definitions explaining the terms entrepreneur and entrepreneurship are formulated.

Newer definitions by Shane (2003) and Ambrish (2014) also ask an entrepreneur as a private who possesses the skill to take advantage of opportunities by introducing new or better ways to supply goods and services to the economy, to reinforce methods and improve ways of organizing and by establishing a replacement business or revitalizing an existing one by such means as improved service or product delivery. Historical and up to date definitions within the

field of entrepreneurship include the subsequent character words: opportunism, innovation, risk-taking, designing new combinations of processes. Various definitions for female entrepreneurs have also been established in recent years. Within the UK and US, a female-owned business refers to at least one that's either fully or majority (51% or more) owned by females. Supported the aforementioned, the question might be posed: If the concept of entrepreneurship has been clearly defined by numerous researchers and experts during this field.

### 3. Importance of Continuous Research:

As more females venture into the sector of entrepreneurship globally, research approaches and theoretical perspectives to know the role women play within this sector require clearer definition. Since females are formally entering the world of entrepreneurship during the previous couple of decades, they will be considered together of the fastest growing entrepreneurial populations within the world. Consistent with the OECD (2004) female entrepreneurship must be studied as a separate group for 2 reasons. Firstly, it's been recognized as a valuable and unexploited source of economic movement and growth that makes not just jobs for themselves, but for others also. Additionally, females in some cases often provide society with alternative solutions to varied social problems. Secondly, the subject of female entrepreneurship has previously been neglected in social sciences and generally society. However, this is often slowly changing as more women are getting into the market and policies assisting within the development and management of such entrepreneurship are gradually becoming more prevalent in many countries. The World Bank (2015) states that the empowerment of girls is prime in achieving continued sustainable development which succeeding during this endeavor could enhance economic efficiency. Various allusions regarding entrepreneurship as a male dominated field are made within the past. In 1921, a reference was made to the "active businessman" while in 1934 an entrepreneur was described as a "captain of industry" (Scranton, 2010). This trend continued with a press release made in 1968 terming an entrepreneur as a "hero who perceives the gaps and connects markets" (Bird and Brush, 2002) whereas, in 1982 Hebert and Link mentioned an entrepreneur because the "key man". It is sensible that the literature and theory was viewed from a male perspective within the past, because for several years females weren't active within the business and economic sector. But as times have changed and ladies are entering this previously male dominated industry, the necessity for brand spanking new and female-relevant research is growing (Heber and Link, 1982).

Leading researchers within the field of female entrepreneurship have emphasized the importance of studying this as a separate research entity as there are significant differences between male and feminine motivations, characteristics and business growth and development with reference to entrepreneurship. There also are clear distinguishing features in a number of the methods and ways in which female entrepreneurs manage their businesses and compile strategies. Additionally, Botha et al., (2007) suggest that some women might need more assistance with reference to self-esteem and confidence than traditional male entrepreneurs. Barsh and Yee (2011) further contend that ladies face different structural obstacles, lifestyle issues and individually embedded mind-sets in comparison to men. While there's proof that similarities between certain entrepreneurial traits in men and ladies exist, there are clear differences in many other aspects. Greene et al., (2003) report that over the last 25 years various research have identified similarities between male and feminine entrepreneurs, but that these investigations lack substantial discussion of the differences. A number of the foremost compelling differences between male and feminine entrepreneurs include: reasons for starting a business, the selection of business, how they finance their start-ups, governance structures, growth patterns and a few aspects of the entrepreneurial process. Various differences are present within the traditional way during which entrepreneurship is perceived in comparison to a female perspective. The size of the entrepreneurial process: time, concept of reality, action and interaction, ethics and power are all often performed during a different and more subtle manner when viewed from a female perspective. Additionally to the present, Bird and Brush (2002) further explain that there are clear differences within the way that traditional and new ventures and organizations are started and therefore the way that they might be managed from a female perspective.

There also are differences within the structure, method of controlling of systems, culture and policy integration. McAdam (2013) asserts that there are many similarities within the operating profile of small businesses despite the varying traits of the owners, but that there's indeed a big difference within the operating profiles of female owners. This need for supplementary research on female entrepreneurship further extends to developing and emerging countries where culture still plays an enormous role within the development and empowerment of girls. Many cultures still believe that ladies are solely liable for home and family related tasks also as purposes of reproduction. This might restrict women from starting a business or hinder their growth potential due to their status within the community. consistent with the worldwide Entrepreneurship Monitor (GEM) women tend to lack confidence compared to their male equals when it involves business matters, despite their origin, education level, work status then forth (Herrington et al., 2009). As research in many cases have an immediate and indirect link to management policies and enhancements in strategies, having more high impact data available could contribute to improved management in certain cases

#### 4. Methodology:

The methodology utilized in this study was an iterative procedure, analyzing and reviewing previously published articles. Thus, content analysis comprised the most a part of the methodology. The said analysis was administered by analyzing all the mentioned journals per annum and per issue, from 2002 till 2016, and identifying articles that were associated with gender, business and / or entrepreneurship. These could either have taken the shape of articles focusing specifically just on females or people who compared female and male aspects concerning entrepreneurship. From this information, a dataset was prepared and percentages were calculated. The second a part of the methodology comprised a comparative study approach. An equivalent leading entrepreneurial journals utilized in the first studies conducted were analyzed. the subsequent journals: Entrepreneurship Theory and Practice (ETP), Journal of Small Business Management (JSBM); International Small Business Journal (ISBJ), Frontiers of Entrepreneurship Research (FER), Journal of Business Ethics (JBE), Journal of Business Venturing (JBV), Entrepreneurship and Regional Development (ERD), Small Business Economics (SBE) and therefore the Journal of Developmental Entrepreneurship (JDE). A number of the mentioned journals were launched after 1976, in order that they were analyzed from date of initiation until 2001. The authors of this study didn't specify how they selected these specific journals but it's suggested that they chose the so called "A journals" in academic writing circles. The tiny Business Economics (SBE) journal was also added to the list. Choice of the so called leading "A journals" was made by consulting an internet page by Jerome Katz's at Saint Louis University, which is documented and revered by entrepreneurship scholars. This led to the choice of the subsequent journals: Organization Studies (OS), Human Relations (HR), Journal of Management Studies (JMS), Organization and therefore the Scandinavian Journal of Management (SJM). As no study might be found on published articles concerning female entrepreneurship from 2002 to 2016, an investigation into this was conducted Results and

#### 5. Discussion :

The same nine leading journals as within the original study by Greene et al., (2003) were analyzed to work out whether or not the amount of research supported female entrepreneurship has increased. Table 1 depicts the amount of refereed articles published within these journals between 2002 and 2016.

**Table 1: Leading journal publication on female entrepreneurship 2002-2016**

Journal name	Issues reviewed	Total articles	Articles on FE 2002-16	% article on FE 2002-16	Articles on FE 1976-2001
ETP	80	550	28	5.09	7
JSBM	59	530	25	4.72	31
ISBJ	93	468	21	4.49	11
FER	14	3025	139	4.60	18
JBE	447	4277	120	2.81	7
JBV	89	597	16	2.68	20
ERD	108	411	14	3.41	11
SBE	117	1015	32	3.15	14
JDE	45	305	42	13.77	10

#### 6. Conclusion and Recommendations:

Analysis of the present research available on the subject of female entrepreneurship has acknowledged the subsequent research gaps;

- 1) More cross-country studies got to be conducted in future,
- 2) Comparisons between different female groups or samples must be undertaken,
- 3) The role of human capital, strategic choices and structural barriers in female entrepreneurship involves further investigation; it's not clear why this gap exists. Is there not enough research being conducted by experts within the field of female entrepreneurship? This might perhaps be addressed during a separate study and therefore the answers to those questions might be considered a limitation to the present study. Possible recommendations to make sure that more research on female entrepreneurship topics is published could include the promotion of special editions by journals on the subject of female entrepreneurship; funding opportunities provided by government or other stakeholders to market research during this field; collaborations between institutions and universities not only on an area level but internationally as well; creating special focus groups investigating the gaps within the research and literature in an effort to make sure that it's filled. These are only a couple of possible recommendations. Each university and government institution may produce other methods and ways to enhance research quantity and quality on a selected topic.

## References:

1. Ahl H.J., 2002, the making of the female entrepreneur: A discourse analysis of research texts on women's entrepreneurship, Jönköping Sweden: Parajett AB.
2. Ambrish D.R., 2014, Entrepreneurship development: An approach to economic empowerment of women, "International Journal of Multidisciplinary Approach and Studies", 01(6).
3. Asian Development Bank, 2007, Technical Assistance Report. Promoting rural women's entrepreneurship in transition economies, Manila: Asian Development Bank.
4. Barsh J., Yee L., 2011, unlocking the full potential of women in the US economy, a special report produced exclusively for The Wall Street Journal Executive Task Force for women in the economy 2011, New York: McKinsey & Company.
5. Bird B., Brush C.G., 2002, A gender perspective on organizational creation, "Entrepreneurship Theory and Practice", Spring Issue, 26(3).
6. Botha M., Nieman G., Van Vuuren J., 2007, Measuring the effectiveness of the Women Entrepreneurship Programme on potential, start-up and established women entrepreneurs in South Africa, "South African Journal of Economic and Management Sciences", 10(2).
7. Brush C.G., Cooper S., 2012, Female entrepreneurship and economic development, an international perspective, "Entrepreneurship and Regional Development: An International Journal", 24(1-2).
8. Brush C.G., Carter N.M., Gatewood E.J., Greene P.G., Hart M.M., 2006, Growth orientated women entrepreneurs and their businesses: A global research perspective, Cheltenham, UK: Edward Elgar.

# A Study of Marketing Communication Tools and Techniques Used in Digital Marketing

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## Abstract:

*Successful companies are aware of the needs for long-term strategic development, which is based on relationship marketing with customers. That is necessary to touch the customers' emotion and irrationality of purchase decision. For this touch, companies use marketing communication tools to increase own sales. Adequate communication could create optimal background for effective marketing. The article is focused on dependency between genders and marketing communication tools. Techniques that are grounded in knowledge and theory have greater validity and credibility as to their effectiveness, and can give clients more confidence when buying qualitative research.*

**Key words:** Marketing Communication Tools, Marketing Communication Techniques.

## 1. Introduction:

Marketing communication refers to the means adopted by the companies to convey msg about the products and the brands they sell either directly or indirectly. As we've mentioned previously, Integrated Marketing communications can be used harmoniously with five primary communication tools. These are advertising, direct marketing, internet marketing, sales promotion and public relations.

As a marketer, there is a treasure trove of tools at your disposal to help your organization generate awareness and support sales efforts these are known as marketing communication tools. Marketing communication tools are a set of diversified programs designated to communicate with your target audience effectively. Any good marketer knows the importance of utilizing marketing communication tools that are best suited for specific marketing campaigns in order to reach your audience at various stages of the marketing funnel and across different channels. Deciding the best way to use these tools in order to effectively reach your audience is your marketing communication strategy, which is essential if you want your message to resonate.

A marketing person has many tools at his disposal for generating awareness and supporting the selling effort. While there are numerous marketing communication tools, there are also numerous mixes for these tools. The following is a list of some of the more common tools along with examples of their use and some considerations. One important note is remembered that marketing communication tools do improve understanding your product or service, reinforcing your messages, supporting the sales cycle and generating awareness.

## 2. Marketing Communication Tools:

**1) Advertising:** Advertising's main feature is increasing awareness. An example of an ad might be an enterprise promoting that it is number one in providing top quality lawn mowers. Ads also help promote your product or service and branding for your enterprise. Major advice regarding advertising is to very clear about its objective, who is the audience and how will you measure its effectiveness.

One major mistake that many companies make is that after doing an excellent job of determining the objectives, defining audience and establishing metrics, is that they do not fund the advertising plan so that it will be effective. All too many times after an ad campaign starts they stop funding it because they do not see any positive results. Typically ad programs have a "threshold" or how many times it must run to be effective, but many companies stop part of the way through and move on to something else. Rule number one; do not run any ads unless you are funded for the full program!

**2) Direct mail or email campaigns:** The primary purpose of mailings, direct or email, is to generate leads, via some form of an offer or call to action. An example of a direct mail might be a message that addresses the need for additional revenues and implementing a marketing program that will result in additional revenues. Mailings can also be used for promoting any major communication messages. Like advertising, first make sure you know your objective and have a targeted audience and how you will measure the campaign. Word of caution, mailings do not usually replace the sales force (I am addressing business to business markets). But as stated, they provide leads or names of potential customers. The biggest mistakes most companies make are; the offer does not line up with the targeted audience, the offer is not compelling. and a lack of a call to action. If you do not address these issues you are only "clicks" away from losing your potential customer.

**3) Social Media:** Social Media's main purpose is providing "information" about your products, services, and enterprise, and other people's opinions about all three. As Bob has discussed in a number of articles, social media is not only

growing at a rapid rate, it is becoming a resource for consumer/buyers to research the potential product or service way before your enterprise is even aware of the buyer's interest. Key advice here is to at least monitor these activities, respond to viewer's comments, especially if there is bad publicity. Common mistakes are not engaging in one form of these activities, becoming defensive about social remarks and not gathering this information for future products or services.

**4) Trade shows, seminars, webinars:** These tools can address many issues, but usually their primary objectives are leads and a product/service introduction or announcement. An example might be "Visit our booth #1234 and see the industry's fastest switch". Two of the biggest mistakes are not getting the leads out to the field in a timely manner and having a very strong message that is easy to understand.

**5) Newsletters, Catalogs:** Primary use is for conveying information, be it some form of an update or similar to the trade show, an announcement of a new product or service. Key for success for these is attention getting and true value proposition.

Understand there are numerous marketing tools and even more when you make different mixes, and I have just highlighted just 5. Regardless of the tools you use or what combinations, remember that you must have an objective, a well defined audience, an agreed method of measurement and most importantly, adequate funds for each program/campaign. The key to a successful use of these marketing tools is to coordinate these activities with the sales organization (give them plenty of notice ahead of time) and other distribution channels.

### **3. Marketing Communication Techniques:**

Marketing professionals are trained to be experts in communication. They function as a kind of "middleman" between a company or a company's image and the public perception of that company or its image. The role of a marketing professional is to shape that image through the use of available communication techniques. Marketing professionals are different from sales representatives, in that the sales representatives sell the company's products while the marketing professionals sell the company's brand or image.

1) Conduct market research. Market research is an essential part of the process of developing effective marketing communication techniques. A marketing professional cannot reach out successfully to potential customers unless he understands who the target audience is and how the target audience responds. For instance, fast food companies such as McDonald's and Burger King completed marketing research that indicated the importance of the youth market to their business. As a result, these chains developed marketing communication techniques around this demographic to "speak the language" of their customers more effectively.

2) Buy promotional products and host promotional events. Among communication techniques, promotional products and events can be an excellent way for marketing professionals to interact with the public and present new products or just feature the company's strengths. What is more, everybody loves a freebie or a really good sale, so a promotional product or event is an opportunity to introduce the company or its products to those who would not have been inclined to purchase full-priced items from the company. And if the customer discovers an appreciation for the company or its products, the promotion has definitely done its job.

3) Use printed marketing material. Though more areas of life seem to be moving online, printed material is still a relevant communication technique for the marketing professional. Printed material can range in options from fliers and print advertisements to large billboards that customers see on major roadways. All advertisements are not equal, and companies should remember that while online advertising can sometimes be cheaper and more immediate—because there are no printing costs to shoulder—online advertising might not be appropriate for a company's primary demographic.

4) Create, build and modify a website, which is an essential part of marketing communication in the 21st century. Even a small business can create a significant business presence for itself online, and a website offers one more way for customers to communicate with companies. A website should contain useful information about the company's purpose, its history, its customer service policies, and of course its products. The website should also provide means for the customer to contact the company and should guarantee that the company will respond as quickly as possible.

5) Participate in social networking sites, which go one step beyond the website by creating an added accessibility to customers. A company that starts a Facebook site can allow other Facebook users to "friend" the site, receiving

special promotional information available only to them. Companies with a Twitter account can post immediate information about new products and sales, and thus reach out to customers more quickly. Although social networking cannot be a sole marketing communication technique, it provides one more way that companies can make themselves available to customers and reshape their image in a changing digital age.

#### **4. Conclusions:**

The results also showed that return on investment is the most common metric for evaluating the investments of online communication activities, and that respondents expressed the highest level of confidence in this metric as well. In line with the results, we have proposed return on investment as the most appropriate metric applicable in evaluation of the effectiveness of online communication tools. In the marketing discipline. It has influenced thinking and acting among all types of companies and organizations facing the realities of competition in an open economy. From the beginning of the 1990s IMC became a real hot topic in the field of marketing. Four stages of IMC have been identified, starting from tactical coordination to financial and strategic integration. By analyzing face-to-face and online communication skills, identified the strengths and weaknesses and developed some ideas on how to improve my communication skills to become a more knowledgeable and skilled. A plan to be an effective and ethical communicator by further educating in this area and practicing verbal, nonverbal, and active listening skills that we learned in the communication.

#### **References:**

1. [www.Sparkinterat.com.au](http://www.Sparkinterat.com.au)
2. [www.Marcom.com](http://www.Marcom.com)
3. [www.Smallbusiness.chrom.com](http://www.Smallbusiness.chrom.com)
4. [www.Repec.ef.cz/acta/articale](http://www.Repec.ef.cz/acta/articale).
5. [www.Scholar.google.co.in](http://www.Scholar.google.co.in)
6. [www.Google.com](http://www.Google.com)

# A STUDY ON EFFECTIVENESS OF TRADITIONAL VS MODERN MEDIA OF ADVERTISING IN RURAL AREA

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## ABSTRACT:

*The most popular and efficient way of generating awareness among customers is advertisements. It is a marketing communication that employs an openly sponsored, on-personal message to market or sell a product or idea. Advertising is conveyed through different mass media like conventional media and modern media. The purpose of the undertaken study is to examine the effectiveness of traditional as well as modern media on advertising in rural area. For this purpose, study is conducted to investigate the impact of different media, i.e. traditional and modern media on advertising among individuals in rural areas.*

**Key words:** Advertising Media, Traditional advertising, Modern advertising.

## 1. INTRODUCTION:

Advertising as a communication platform is subject to many hypotheses and explanatory and normative models, but mainly acts as a marketing tool. The word 'Advertisement' comes from the Latin word of Advertere "which helps to understand minds of people towards product". Advertisement helps to transfer the business promotional information to present and prospective customer. Advertisement is more important for seller in modern and large scale production, without advertisement and promotional activity they cannot push product for sales effectively in competitive marketing. Traditional media communication medium was considered to be very important a few years ago, but from last few years the digital media is prospering considerably and it become very important mode of communication in marketing and advertising for building brand sustainability. Digital marketers interact and communicate effectively and inexpensively to the customers by using the mechanism of digital media channels.

## 2. STATEMENT OF THE PROBLEM:

In Current scenario, the advertisement and promotional offers are the major problems to all retailers. So it is very difficult to identify the consumer's needs and wants and media which reach properly to customers. It is also difficult to retain current customers. In case of rural areas, the features of customers are entirely different in income level, literacy-rate, media habits etc. So it is necessary to select suitable advertising strategies to reach target customers.

## 3. OBJECTIVES:

- To evaluate traditional and modern advertising effectiveness in rural areas.
- To study the merits and demerits of traditional and modern advertising.
- To find out the most effective means of advertising for the rural market.
- To study various strategies of rural advertising.

## 4. SCOPE OF THE STUDY:

Advertising is a marketing strategy that involves paying for space to advertise a brand, service or cause. Advertisements or ads for short are the actual promotional messages. This study about the effectiveness of traditional and modern advertising helps retailers who target rural areas to devise market and make strategies. Present study helps to collect information about rural customer's lifestyle and attitude towards shopping and to know how much consumers are attracted about modern advertising methods.

## 5. RESERCH METHODOLOGY:

This study is descriptive and both primary and secondary data has been collected. Primary data is collected using questionnaire from 50 respondents from rural areas (convenience sampling) in Aurangabad district. The collected data is analyzed on the basis of percentage. Secondary data is collected from journals and websites.

## 6. SIGNIFICANCE OF THE STUDY:

Advertising plays a key role in promotion of the product. For this enormous magnitude of rural masses with diverse social, cultural backgrounds and speaking a few hundred dialects, the problem before the marketer is to find a

common path. Traditionally, advertising always ignored rural India, except for fertilizers, tractors, water pumps, insecticides and seeds. There was no direct interaction with the prospective consumer, only few selected rural distributors and retailers had taken up the responsibility for the rural market. Before the penetration of television and other media, advertisers had very limited alternative form of advertising for promoting their brands. So marketers mostly relied on either print media or radio as tool of communication. Though some years ago, rural market was not given enough importance by the companies but now the things are definitely changing. It is necessary to consider the desires, concerns and hopes of rural consumers in relation to each product category and to build a communication package to deliver a product message in order to interact effectively with rural audiences. This study helps to know which medias are more effective in case of rural areas.

## 7. REVIEW OF LITERATURE:

P.Venkata Subbaiah and Sathish A. S (2017) analyzed that the rural consumers range is different not only in their behavior and practices but additionally in their conviction and ideals.

Asha. K and Merlin Thanga Joy. A (2016) reveals that in case of FMCGs only well educated and rich consumers utilize the top national brands. The consumers have been establishing very exposed to different media primarily to newspapers and television.

Jnaneshwar Pai Maroor (2015) found out that in rural areas women do not have personal confidence in advertisement. Family and friends play an important role in the buying decision.

## 8. STRATEGIES OF RURAL ADVERTISING:

Advertising is a type of promotional mix that contributes to sales growth. The audience is receptive in the case of rural areas, and so their responses can be to any form of media used for the purpose. A few approaches that are used in rural areas are

- Newspapers
- Gramsabha
- Puppet Shows
- Folk Shows and songs
- Farm Field School

But there are certain variables including cultural variables, low literacy, transportation, communication issue, conventional life, price, lack of interest for modern styles, and many more that pose a challenge in promoting and advertising there. Creative promotional campaigns in rural areas are being used to fill the gap.

### a. Reverse Innovation

Reverse innovation is the type of innovation that began mainly in developing areas and was then embraced by developed regions.

### b. Change In Perception

Rural India is very close to nature. To brush their teeth, they can easily use Neem sticks, but it is because of the stringent promotional campaigns in the remote areas that they use toothpaste in a tube despite the neem tree branches and substitute the conventional methods of brushing teeth.

### c. Understanding Social Values and Culture

It is their propensity to embrace a product or brand that is similar to their community in rural areas, given the fact that people there are not readily open to new experiences. In determining what they can actually use in their everyday lives, which can be at work or at home, culture plays an important role.

### d. Broad Strategies of Advertising in Rural India

It's not easy to adopt and turn to newer goods for rural areas. Due to this, certain approaches have been established, such as:

- i. Influencer Strategy: The role of the opinion leader or influencer in marketing communication cannot be ignored as far as rural India is concerned.
- ii. Participatory Strategy: The best place to seek the villagers' participation is the events like different games and sports competitions, where they always try to have it.
- iii. Show-and-Tell Strategy: Many brands have adopted different ways to educate the rural consumers about the usage of the product.

### A. Traditional Advertising Methods

Following are the methods of traditional advertising,

- Television media Advertising

- Radio Advertising
- Broadcast Advertising
- Outdoor Advertising
- Direct Mail
- Print Media Advertising
  - Newspapers
  - Periodicals
- Billboards
- Door-to-door sales
- Banner Advertising



Fig. 1 Methods of Traditional Advertising

#### Merits of Traditional advertising:

- i. Reach:** Traditional advertisement is readily available to local target markets. You can easily target potential customers in a specific city through FM radio ads and local editions of newspapers.
- ii. Face to Face contact:** Many individuals still prefer human contact, even though technology continues to evolve. Human interaction is powerful. Making time to connect face to face with prospective customers leaves a lasting impression. For your company, your efforts to establish relationships will produce a high return. This conventional interaction will bring new opportunities for company.
- iii. Tangible offers:** Target customers will hold hard copies, such as flyers and magazine advertisements, of your promotional materials, which they repeatedly go through. Nowadays, using some pretty cool stock photos and context vectors, it's easier for designers to construct attractive flyer designs.
- iv. Product Testing:** Traditional advertisement can reach someone without the internet, and people understand it more readily because they have been used to it for some time.

#### Demerits of Traditional advertising

- i. Expensive:** Traditional media buys are usually more expensive than newer forms of advertising
- ii. Lack of Immediacy:** One of the disadvantages of traditional marketing is that it does not allow you to respond to changes in the marketplace as quickly as newer forms of communication.
- iii. Harder to Target Audience :** One of the disadvantages of traditional marketing is that print and broadcast outlets provide media kits with audience demographics, but once a magazine is mailed, you don't know who really read, saw or heard the advertising. A document is distributed or an advertisement is transmitted.
- iv. Limited Information:** Compared to newer ways of communication, the message that you can send with conventional ads is far more constrained.

## B. Modern Advertising Methods

Following are the methods of modern advertising

- Digital or Online Advertising
- Mobile Advertising
- Social media Advertising
- Pay-per-Click advertising

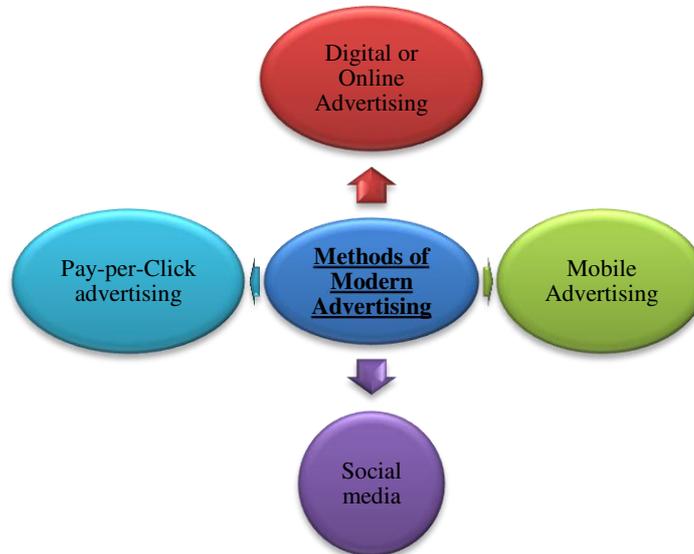


Fig. 2 Methods of Modern Advertising

### Merits of Modern Advertising:

- i. **Customer-orientation:** Modern methods of advertisement are more client-oriented and rational. On the other hand, traditional marketing is also financially demanding and is not consumer-centered.
- ii. **Efficiency in Cost and Time:** Modern advertisement strategies use the Internet, which, if you take into account the cost and traffic ratio, is economical. You have the advantage of appealing to customers using a platform that can deliver fast results by marketing your services and products over the Internet.
- iii. **Trust:** Modern marketing approaches are more effective in building a brand's reputation. This increases the utility and value of the company in the long run.

### Demerits of modern advertising:

- i. **Complicated Nature:** Modern advertising are somewhat complicated in nature as compared to the traditional advertising.
- ii. **Mistakes Can Be Costly:** Since digital advertising is complex, making mistakes is not unusual for companies. Choose the wrong keywords, ignore a bidding cap, ineffectively aim, or leave a campaign running when you thought it was off, and without converting a single lead into a deal, you can spend a fortune.
- iii. **Competition Is Fierce:** It depends on the goods and market, but competition from internet ads will make advertisements prohibitively costly.

## C. Traditional Media vs. Modern Media:

Although traditional and new media can go hand-in-hand, there are a few reasons for adding new media to your mix for improving the use of traditional media.

- i. **Value:** Often, modern media is much less costly than conventional media. Not only do you pay less for your ads, but per person you reach, you also pay less.
- ii. **Interaction/Communication:** As well as conventional media, digital media appears to be even more social. New types of media, such as social media, allow direct business-consumer contact and interaction.
- iii. **Data-Driven:** The new media is heavily powered by data. For example, you have access to exactly how many eyeballs your banner ad has seen, or how many individuals have visited your website.

- iv. **Efficient for Cost:** New media, on a similar note, is even more cost-efficient. It is possible that investing money on digital media would yield greater reach than spending the same amount on conventional media.
- v. **Accuracy:** The quality of its findings is an additional advantage for digital media. New media allows you to comb through results that show you just how many people watched your ad, how long they viewed your ad, and whether or not it led to a click-through, unlike with TV ratings.
- vi. **Trust:** Getting a social media presence helps companies to build a sense of trust with customers. We prefer to trust our mates, and this means the same sense of trust if a customer follows you on social media. This also encourages successful word of mouth ads to be promoted.
- vii. **Worldwide Scope:** There is a global scope for digital media, while conventional media appears to be highly localized. You are able to cover the entire globe for a fraction of the cost with new media.

## 9. FINDINGS:

- ❖ Majority of respondents from rural areas are educated and well aware about advertising media.
- ❖ Above 90% of younger generation use mobile phones as well as internet, thus they are familiar about modern media of advertisement.
- ❖ Individuals above 60 years of age are still depending upon TV, radio and newspaper for taking purchase decision.
- ❖ It is observed that people are becoming less receptive to traditional media and traditional advertising methods are losing their effectiveness over time. Nowadays rural consumers are attracted towards modern medias of advertising.
- ❖ Study shows that smartphone are leading social media marketing channels and have become effective tool of digital media advertising.

## 10. SUGGESTIONS:

- ❖ Technology is always a vital factor in advertising therefore rural areas should be familiarized with new technologies.
- ❖ Traditional media such as television, radio and newspapers has shown significant effectiveness on senior citizens therefore traditional medias should be effectively used as medium for advertisement among them.

## 11. CONCLUSION:

Advertising is a communication tool, but many theories and exploratory and normative models are mostly subject to a marketing instrument. Advertisement is more important for seller in modern and large scale production, without advertisement and promotional activity they cannot push product for sales effectively in competitive marketing. From this study, concluded that younger generation in rural areas are familiar about modern advertising medias but people above sixty years are familiar only about radio, TV and newspapers as medium for advertisement.

## REFERENCES:

1. *Advertising and Marketing Industry in India*. (2017, March). Retrieved May 14, 2018, from <https://www.ibef.org:https://www.ibef.org/industry/advertising-marketing-india.aspx>
2. Amo, T. (2012). *How to Advertise a Product on Facebook*. Retrieved from <https://smallbusiness.chron.com:https://smallbusiness.chron.com/advertise-product-facebook-55695.html>
3. Arora, S. (2018, September 12). *Rural Advertising in India*. Retrieved from <https://www.learnistan.com:https://www.learnistan.com/rural-advertising-in-india/>
4. Baruah, T. D. (2012). Effectiveness of Social Media as a tool of communication and its potential for technology enabled connections: A Micro Level Study. *International Journal of Scientific and Research Publications* , 2 (5), 1-10.
5. Bebsodeh, H., & Joseph, K. J. (2013). ADVERTISEMENT IN MEDIA AND THE BEHAVIOUR OF WOMEN IN INDIA AND IRAN: A COMPARATIVE STUDY. *Asian Journal of Development Matters* , 7 (2), 1-24.
6. Cunha, M. d. (2018, November 28). *The Complete Guide to Advertising on Instagram* . Retrieved December 30, 2018, from <https://www.wordstream.com:https://www.wordstream.com/blog/ws/2017/11/20/instagram-advertising>
7. Gupta, S. (2018). Twitter Marketing. In S. Gupta, *Digital Marketing* (pp. 221-255). Chennai: Mc Graw Hill Education Private Limited.
8. Joy, A. A. (2016). Impact of Television Advertisement on buying behavior of rural consumers towards FMCG in Kanyakumari District. *Journal of Chemical and Pharmaceutical sciences* , 9 (4), 1827-1831.
9. (September 2018). *KPMG 'Media Ecosystems: The Wall Falls Down' India's Media and Entertainment report 2018*. KPMG.

10. Li, F., & Miniard, P. W. (2006). On The Potential for Advertising to Facilitate Trust in the Advertised Brand. *Journal of Advertising* , 35 (4), 101-112.
11. Logambal, R. (2016). Emerging Trends In Advertising. *IOSR Journal of Business and Management* , 20-22.
12. Maroor, J. P. (2015). Study on Awareness and Perception of Rural Women towards advertisement. *Pacific Business Review International* , 8 (5).
13. Mendiratta, A., & Mehta, V. (2011). Effectiveness of Media in Mobilizing People Towards Social Causes and Campaigns. *Indian Journal of Marketing* , 41, 4-10.
14. Milano, S. (2011). *Categories of Consumer Advertisements*. Retrieved from <https://smallbusiness.chron.com:https://smallbusiness.chron.com/categories-consumer-advertisements-20722.html>
15. Nayar, V. (2018, May 31). *Pros And Cons Of Traditional Marketing Vs Digital Marketing*. Retrieved from <https://acodez.in:https://acodez.in/traditional-marketing-vs-digital-marketing/>
16. Nelson, M. R., & Paek, H.-J. (2007). A content analysis of advertising in a global magazine across seven countries: Implications for global advertising strategies. *International Marketing Review* , 24 (1), 64-86.
17. Shah, M. (2020, April 1). *Traditional Media vs. New Media: Which is Beneficial*. Retrieved from <https://www.techfunnel.com:https://www.techfunnel.com/martech/traditional-media-vs-new-media-beneficial/>
18. (2009). Television Advertising. In S. Sharma, & R. Singh, *Advertising - Planning and Implementation* (pp. 351-359). New Delhi: PHI Learning Private Limited.
19. Signs, S. M. (Ed.). (2014, September 18). *The Advantages of Modern Advertising*. Retrieved from <https://patch.com:https://patch.com/california/cupertino/advantages-modern-advertising-0>
20. Subbaiah, P. V., & Sathish, A. S. (2017). Future of advertisements in Rural Marketing. *Sona Global Management Review* , 11 (2), 23-34.
21. WebFX (Ed.). (n.d.). *Traditional Media vs. New Media: Which Methods Belong in Your Marketing Plan?* Retrieved from <https://www.webfx.com:https://www.webfx.com/internet-marketing/traditional-media-vs-new-media.html>
22. *Why Advertising Is Important In Today's Economy*. (n.d.). Retrieved 5 6, 2017, from <http://www.adarmygroup.com:http://www.adarmygroup.com/advertising-important.php>

# Effects of the External (Macro) And Internal (Micro) Source (Factors) of Innovation on the Performance of Telecommunication

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## **ABSTRACT:**

*In an effort to use the resource-based theoretical approach, this text tried to empirically investigate the influence and impact of the internal (micro) and external (macro) environmental factors of innovation performance employing a sample of small and medium sized firms within the telecommunication cluster in Ghana with the most specialize in examining variables like customer inputs, the intensive role of R&D, cooperative networks, the uncertain environment and therefore the complex environment of the firm. A sample of 31 SMEs within the telecommunication cluster was selected with 109 questionnaires administered. The results indicate that the macro environmental sources as cooperative network and customer inputs actually impact positively on the innovation performance of SMEs within the communication cluster in Ghana. However, firm size, network size and sophisticated environment were shown to be negatively associated with firm innovation performance.*

## **1. INTRODUCTION:**

In the era where innovation by firms and enterprises has become pervasive and hip, innovation can be seen to be generated from different sources. Firms within their quest to innovate to ensure their survival in the market place may source innovation from either the micro (internal) sources like R&D, the exploitation of employee creativity and core competences or from the macro (external) sources like customers and other strategic alliances usually mentioned as cooperative networks as taking advantage of the uncertain and sophisticated nature of the firm to reinforce their innovation performance.

The environment has been described by many authors as both internal and external factors to the organisation and therefore features a direct influence on firms' innovation activities. Thus the environment is taken into account as a key factor for organizational innovation. This is often because its frequent changes of creating the management useful and quality of products and services difficult help stimulate the creation of latest ideas and therefore the innovation of latest products and services onto the market place. The influential role played by both the interior and external factors of the firm's environment in their innovation performance has been outlined by many authors. Various studies within the area of SME innovation have shown that the external (macro) environmental source is usually relied upon by SMEs in their innovation activities thanks to their resource constraints.

High competition on the worldwide market space also because the incontrovertible fact that today's customers' expectations keep rising on day to day and therefore the need for firms to satisfy these growing expectations, SMEs haven't any option than to undertake and build critical innovation capabilities specially firms within the communication sector, and transform their businesses so as to become more competitive and survive within the global market. thanks to the very fact that communication firms are within the high-tech sector of SMEs, they operate mainly within the highly technological driven environment where firms face both vibrant external and internal competitive environment occasioned by rapid changes in technology also as short product life cycles. it's therefore obligatory these SMEs to chart a sustainable path of innovation not just for survival but to be ready to satisfy the growing demands of their customers in the least times.

The environment has also been described as having two basic dimensions: thus the straightforward complex environment which is described as having a relationship with the environmental factors and therefore the one described because the static and dynamic environment that's related to the degree during which the choice elements of the macro environment change.

## **Relation between the environment and organizational innovation.**

Brown (2009), posits that innovation may be a process of creation and implementation of latest ideas within the organization in response to the environment changes. Consistent with innovation literature, there's a longtime relationship between the environment variables and organizational innovation.

Innovation helps organizations to realize a competitive advantage additionally to strengthen their capability to respond to the dynamic environment. The environmental dimensions must be analyzed in the area of environmental complexity and uncertainty since the 2 impact on the magnitude and therefore the sort of innovation.

### **Innovation defined :**

In counting on the resource-based theoretical approach, we define innovation because the adoption of latest ideas and methods to enable organizational survival and success. Organizational innovation is that the creation and therefore the implementation of latest ideas by an organisation in response to the environment change. Innovation comes from R&D that is mainly organisation knowledge accumulation and imitating the innovations of other firms. For innovation to be successful here must be the interaction between both external and internal knowledge integration and technological capabilities.

### **External network resources:**

SMEs in their quest to possess a sustainable innovation culture are constantly engaging both the external and internal factors to assist them attain competitive advantage at the market place. Proponents of the social capital theory state that one important external factor that helps in knowledge transfer for firm's growth and sustainable innovation culture is that the cooperative network. Arguments supporting the resource based approach consider the creation and maintenance of networks as an honest channel to access valuable but scarce external resources. External network resources play a useful role for SMEs therein it benefits the resourced-poor SMEs that enable them to make competitive advantages on the market.

### **Introducing the resource based view approach :**

The underpinned theory behind this study is that the resource based view approach of analysing firms' external and internal environment in reference to organizational innovation performance. This theory holds that firms possess a valuable bundle of resources and capabilities also as other factors which will have superior effects on firm innovation performance. Resource capabilities are represented by bundle of environmental factors, abilities and accumulated knowledge that enable the firm to realize a desired outcome. Describe information and knowledge as increasingly valuable firm resources and dynamic capabilities. The study therefore adopts the resource and capability-performance framework to research the effect of the firms environmental uncertainty and complexities of both the external and internal sources and their resulting capacities and capabilities on SME innovation performance by that specialize in customer input in providing information on customer needs and experiences, cooperative networks in transmitting resources and capabilities and R&D intensity in cultivating R&D capability and absorptive capability.

### **Customer input and innovation performance:**

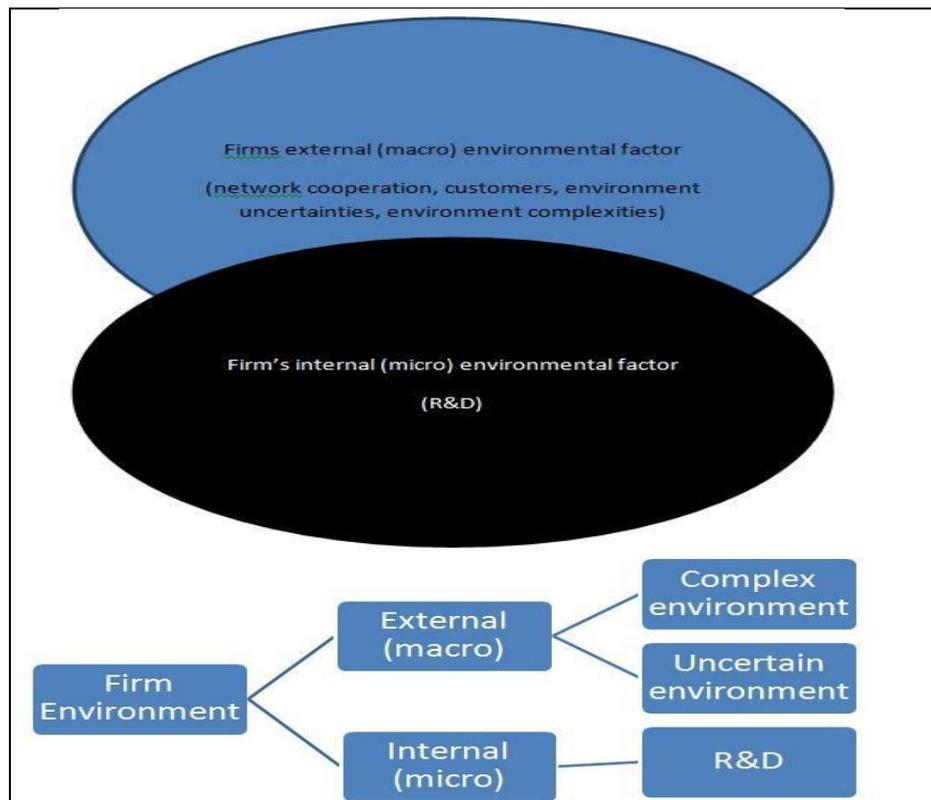
The input of consumers as a mirrored image of a firm's innovative capability is a crucial source of a firm's competitive advantage on the market place. Thus, in an attempt by firms to make sure total satisfaction of their customers at any point in time, they rely totally on customer input which provides vivid information about customers' needs and experiences and by that firms can leverage this resource in their innovation processes. A serious customer input identified in firm's innovation process is typically mentioned because the "voice of the customer" (VOC). An effective means of unraveling customer needs in order to capture their inputs by firms is to directly ask them what they need a replacement product or a service to try for them at a specific point in time.

### **Cooperative networks and innovation performance :**

One most precious external factor for firms' innovation performance is network cooperation. This is often thanks to the very fact that networks transmit new knowledge, information and new technology among firms within the network. Firms that cash in of network collaboration gain additional resources and assets that cause better innovation performance. Collaborative networking features a significant potential to scale back the risks that SMEs face and increase the probabilities of enhanced innovation performance of firms.

## **2. CONCEPTUAL FRAMEWORK :**

The interaction of the external (macro) and internal (micro) environment of a firm for innovation



### 3. THE STUDY METHODOLOGY :

This research investigates and analyses the external and internal environment of SMEs within the telecommunication industrial cluster in Ghana. The telecommunication cluster was selected because the world employs a large number of the population especially the youth although a particular number and therefore the percentage to the unemployment rate within the country wasn't immediately available. The world is additionally growing at a faster rate and acts as a crucial driver for the expansion of the Ghanaian economy with an estimated annual rate of growth of 8% in the past six years. The world contributes about 2.3% of the country's annual GDP.

The study took a sample of 31 companies within the telecommunication cluster in Ghana. These firms are made from communication voice service providers (VSPs), internet service providers, mobile manufacturers and sellers, communication banks, training institutions, research institutions and other auxiliary service providers in the industry which are all located within the Ridge communication cluster in Accra. We selected SMEs within the cluster with quite 30 but 100 employees. This size used as our selection criterion was supported the American Small Business Administration (ASBA) definition of SMEs. This criterion has widely been utilized in the SME literature. It must be emphasized that although the measure of defining SMEs vary among various authors in terms of firm size, number of employees, annual revenue etc., scholars writing about SMEs in Ghana often use the ASBA definition.

#### Instrument of measurement :

The main instrument of measurement for the study was questionnaire. Thus, questionnaire was designed to cover and evaluate all the variables of the study. These variables are thus: customer inputs to the firm's innovation activities, the role of R&D to firms' innovation, the cooperative network, the uncertain environment and the complex environment of the firm. Questions on the variables were supported the work of various authors and were thoroughly explained for the aim of this study. In order to validate and also elaborate on the measurement instrument, the subsequent steps were taken.

- a) a radical review of the definition of every environment dimension.
- b) the elaboration of the new instrument proposal,
- c) review of the questionnaire assisted by a survey specialist,
- d) Conduction of a pilot test to see the reliability and therefore the validity of the instrument.

All the interviews and questionnaires were in English since all respondents could speak and skim English fluently. Department to make sure commitment to developing competitive product strategies.

#### 4. Limitations of the study :

The study consists of a sample size from the Ghanaian telecommunication SME sector alone which makes it industry specific which is a constraint of the generalizability of the results of the study. Again, the sample was taken from Accra, Ghana which makes the study a regional bias. Although, Accra is that the main economic and commercial hub of Ghana, it's important for other researchers to research the phenomenon in other cities in Africa and possibly other developing countries. The study is further limited in scope since it only considers such environmental variables as internal and external resources like network size, environment complexities and uncertainties also as customer inputs. It is therefore recommended that future research should examine the various sorts of external environment resources like alliances, joint ventures and outsourcing in firm's innovation activities and processes. Also firms' internal resources such the executive structure and therefore the human resource capabilities must be examined as a critical internal resource of the firm.

#### 5. Conclusion:

This study draws on the concept of the resourced based view of the consequences of firm's external and internal environment on SME innovation performance within the telecommunication SMEs in Ghana. The study focused mainly on customer input in providing the required information on customer needs and experiences, environment complexities and uncertainty, cooperative networks in transmitting network information and capabilities and therefore the intensity of R&D which drives the interior innovation capabilities of the firm. These factors were examined using Ghanaian telecommunication SMEs as a case study. The results revealed that the dimensions and the duration of the network positively impacts on the innovation performance of the telecommunication SMEs in Ghana. The results also showed that the intensity nature of firms R&D features a positive relationship with the innovation performance of telecommunication SMEs in Ghana. Again, the results of the study has proved that customer input within the sort of providing information on customer needs also as their usage and consumption experiences positively affect the innovation behavior of telecommunication SMEs in Ghana. Finally, the findings of this study provide variety of serious research and managerial implications and lessons especially for managers and writers on firms' innovation performance especially within the context of telecommunication SMEs in Ghana and emerging economies generally.

#### REFERENCES:

1. Abor, Joshua, & Biekpe, Nicholas. (2006). Small business financing initiatives in Ghana. *Problems and Perspectives in Management*, 4(3), 69-77.
2. Al-Ansari, Yahya Darwish Yahya. (2014). Innovation practices as a path to business growth performance: a study of small and medium sized firms in the emerging UAE market
3. Aldrich, Howard. (2008). *Organizations and environments*: Stanford University Press.
4. Amabile, Teresa M, Conti, Regina, Coon, Heather, Lazenby, Jeffrey, & Herron, Michael. (1996). Assessing the work environment for creativity. *Academy of management journal*, 39(5), 1154-1184.
5. Annacchino, Marc. (2011). *The pursuit of new product development: the business development process*: Butterworth-Heinemann.
6. Antoncic, Jasna Auer, & Antoncic, Bostjan. (2011). General Employee Satisfaction, Corporate Entrepreneurship, and Growth of Companies: An Empirical Study in Slovenia. *International Leadership Journal*, 3.
7. Aragón-Correa, J Alberto, García-Morales, Víctor J, & Córdón-Pozo, Eulogio. (2007). Leadership and organizational learning's role on innovation and performance: Lessons from Spain. *Industrial marketing management*, 36(3), 349-359.
8. Arora, Ashish, Ceccagnoli, Marco, & Cohen, Wesley M. (2008). R&D and the Patent Premium. *International journal of industrial organization*, 26(5), 1153-1179.
9. Asare, Sampson D, Gopolang, Bontle, & Mogotlhwane, Opelo. (2012). Challenges facing SMEs in the adoption of ICT in B2B and B2C E-commerce: A comparative case study of Botswana and Ghana. *International Journal of Commerce and Management*, 22(4), 272-285.
10. Auh, Seigyoung, & Menguc, Bulent. (2005). The influence of top management team functional diversity on strategic orientations: The moderating role of environmental turbulence and inter-functional coordination. *International Journal of Research in Marketing*, 22(3), 333-350.

# Emerging Trends in Recreation Service in Pune

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## **ABSTRACT:**

*The recent developments are in land in integrated townships having increased within the past few years. The term integrated townships are a residential district which features a balanced mixture of residential and commercial spaces in conjunction with well-developed infrastructure and recreational amenities besides green and open spaces (T. Lalit Singh). Since these townships cover a sizeable area they're located usually within the outskirts of the town. These residential areas have achieved sustainable development due to the right planning of resources. The expansion of integrated residential townships and gated communities in Pune was during the last decade. There are phenomenal rises within the residential development in Pune. Due to the need of the large manpower within the services sector many high-rise buildings have emerged due to the demand. The integrated townships contributing to environmental sustainability, in their own dutiful rights to the countries they're situated in et al. also thus are reducing the carbon emissions. The features incorporated thereof, are peculiar to large scale urban habitat, a really interesting such tool that both India and UAE are adopting, to line in sustainability, is that the creation of "cities within the cities", that's integrated townships (Pallavi Tak Rai). The perimeter areas which usually have a zone of mixed land use and haphazard development are changing within the socio-economic conditions on account of those integrated townships. This paper attempts to explore the changes which have taken place in five of the integrated townships located in Pune city namely Nanded city, Magarpatta city, Blue-ridge, Oxford City and Down town township. These Residential Township are far away from the town hub areas. They're established on the highways routes of Mumbai Bangalore (NH45), Pune-Solapur (NH65). The expansion of population and changes within the demography has an impression on the land use and land cover.*

## **1. INTRODUCTION:**

With the rapid climb within the population there are limited spaces for the right lay out of the residential areas within the cities. The new trends which are introduced is that the concept of integrated townships to occupy and to accommodate the population with better facility and services. Nowadays the introduction of integrated township or gated communities has been developed to an outsized extent in Pune. These townships are introduced to supply better living of ordinary and security for the people.

## **2. AIMS AND OBJECTIVES:**

In order to review the hypothesis, subsequent aim and objectives are considered. The aim of the study is to assess the change in land and land cover with time within the encircling parts of the eastern and western an area of Pune.

- To classify the satellite image (LANDSAT 7 TM, ETM+ and LANDSAT 8) for the study area of 1992, 2000, 2011, 2015.
- To gauge the change within the LU/LC for these years using image processing techniques.
- To research the impact of the integrated residential township/gated communities on surrounding areas using the first surveyed data and their characteristics.

## **3. DATA AND METHODOLOGY:**

Spatial distribution of land use and land cover information and changes in it's desirable for any planning, management and monitoring at local, regional and national levels (Dhorde Amit et al. 2012). This information not only provides a way better understanding of land utilization aspects but also plays an important role in development of any region. The traditional approach of identifying land use and land cover changes is dear, low accuracy and present picture of only small area (Jaiswal et al. 1999). Remote sensing because of its capability of synoptic viewing and repetitive coverage, provides useful information ashore use/land cover dynamics (Sharma et al. 1989).

The change in land use and land protect the quantity of sometime 23 years was analyzed by using satellite images at around 10 year interval 1992, 2000, 2011 and 2015. The images were downloaded from internet. After scanning topographical map of study area were dereferenced using Arc GIS software.

The satellite images after downloading were used to plan the survey within the study area using FCC (false Color Composite) format. The villages within the study area were then surveyed and thus the communication system points for every class were then used for the generation of the training sites and using those classes, the supervised classification was performed and thus the classified output was derived.

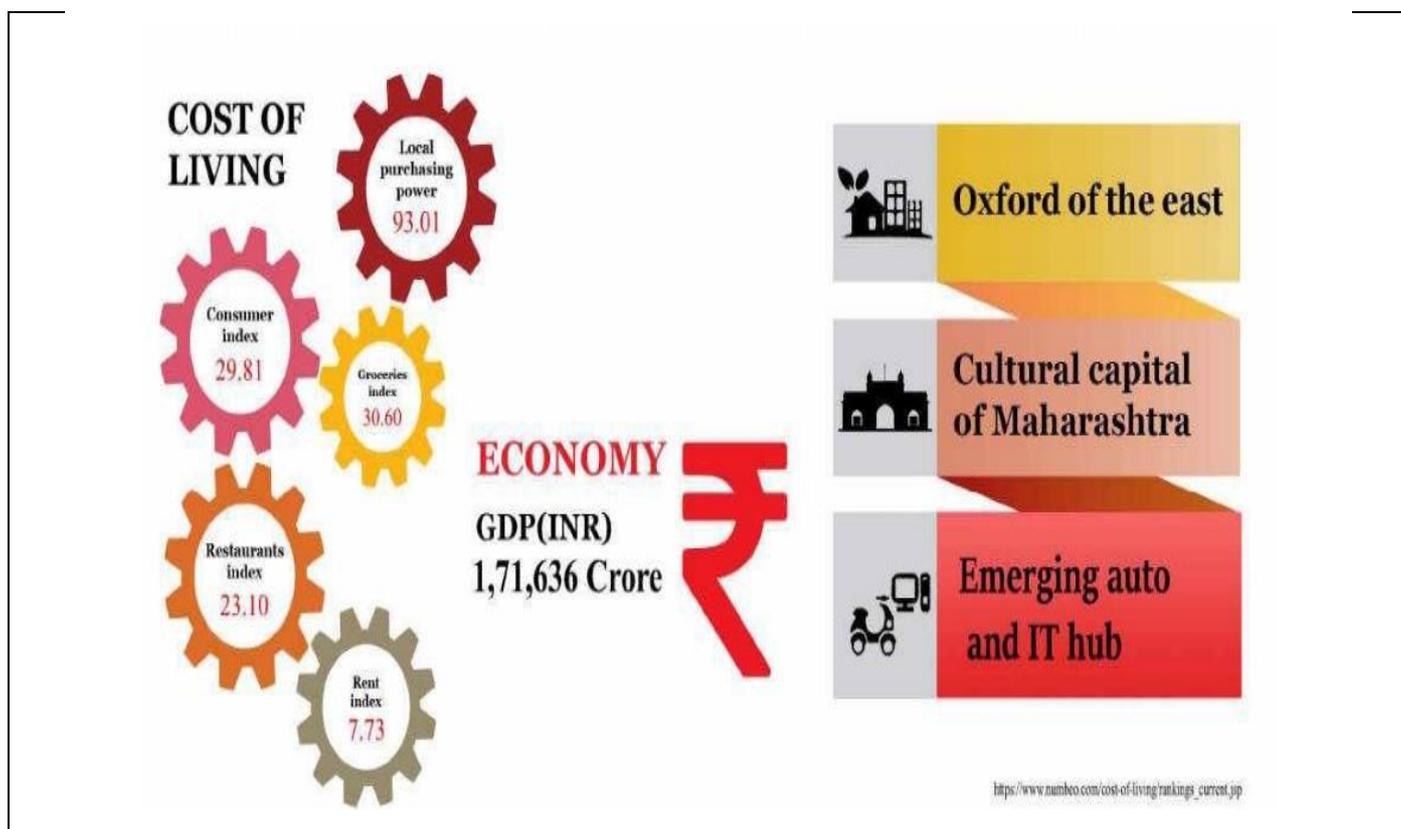
### Pune City Overview :

Globally, Pune is taken into account as a thriving, vibrant metropolis, a middle of academia and business. It's the 9th most populous city of India and thus the 2nd largest within the state of Maharashtra, it's also one among the fastest growing cities within the Asia-Pacific region.

Today, Pune has emerged as a top IT and startup hub in India with quite 400 startups like Pubmatic, Firstcry.com, Storypick.com, TastyKhana.com and Swipe. Pune's software exports is around Rs 29,589 crore (2012-13). 32% of Pune citizens are involved in secondary sectors while tertiary sector-services comprise about 64% of Pune citizens. Approximately, 3 lakh citizens are directly enthusiastic thereto sector for livelihood. The 'Mercer 2017 Quality of Living rankings' evaluated local living conditions in additional than 440 cities round the world where Pune ranked at 145, second in India after Hyderabad (144). It also highlights Pune among evolving business centers and emerging nine cities round the world.

With 811 colleges, Pune is usually mentioned because the "Oxford of the East". This has resulted in additional than 30% graduate workforce, making it a perfect city to emerge as most vibrant city in India. The educated and qualified citizens of Pune are instrumental in driving participative governance.

Pune Municipal Corporation, the civic body of Pune city, stood second within the Smart Cities Challenge launched by Ministry of Urban Development, Govt. of India in 2015. PMC is committed for creating governance citizen-friendly and price effective by delivering services electronically to make sure accountability and transparency. In 2016, Pune city won three awards for Smart City project during a contest organized by Business-World. In 2017 Pune city was identified and ranked 13th among 134 major cities worldwide from America, Europe, Asia Pacific, Middle East and Africa by JLL city Momentum index 2017 where Pune ranked 7th in Asia Pacific and 3rd in India.



### 4. DIGITAL STRATEGY:

Pune's Digital Strategy is formulated to make sure the emergence of Pune as a digital city with high quality services and living standards. It sets out the city's vision to realize a sensible digital future and aims to leverage newer technologies to enhance internal efficiencies. It aims to rework the way PMC as city administration serves its citizens, by improving the citizen engagement to market co-creation and collaboration in civic and social affairs. It complements Pune's vision of being the foremost livable city by creating more economic opportunities and by offering quality of life

over various parameters. The strategy is quite simply putting technology in everything. It's about rethinking the processes and linking technology to make sure effective delivery of services to citizens by keeping citizens aspirations and wishes at the middle.

### **Need for Pune Digital Strategy?**

Pune has been witnessing rapid climb in population, migration and registration of business, exports thereunder services and Auto sector. Statistics given below act as drivers for the town administration to sketch a strong city digital strategy:

- 18.51% of population is young (15-25 age-group).
- Literacy rate is around 89.56%.
- Working age bracket is 67.24% of the entire population
- 22% of Pune households have access to Laptop/ Computer with internet connection (compared to 11% of urban Maharashtra)
- 64% of Pune households have access to mobile phones.

Pune aspires to be “smart” and innovative in its civic service delivery; with better resource utilization, low carbon footprint and an inclusive community. With an aim to make a more Inclusive society, Pune wishes to emerge as a city where citizens enjoy balanced social and economic opportunities.

Pune currently attracts the simplest talent from round the world and to stay competitive globally .The idea isn't just to draw in multinational companies but supporting our existing small-to-medium businesses to make economic opportunities across all sections of society for inclusive growth. The aim is to become self-reliant and innovative in solving the key city challenges like solid waste, traffic, parking, water system, etc. City aims to leverage co-creation and crowd sourcing to answer these key challenges by democratizing the info through its digital platform. For this to happen, every citizen should have access to the state of the art Digital Infrastructure.

Additionally to resilient infrastructure a key requirement is investment in physical ICT assets like city command center, sensors, cameras, etc. In order to deal with the disruption within the labour market, skills training and support for the people losing out from the digital transition is required in future. Clearly, there's a growing segment of population which expects on-demand information and around the clock services. So as to align its services and effectively serve its citizens, Pune needs a well-defined Digital strategy to deal with these issues and present an integrated view of varied initiatives under Pune Municipal Corporation and Smart City Mission.

## **5. Alignment with National Initiatives:**

### **I. Smart City Mission**

As a neighborhood of its Smart City Proposal, Pune aims to unravel its core infrastructure issues by using low-cost Information Communication & Technology (ICT) based solutions. Flagship solutions include Vehicle health monitoring system, Smart water solution, Adaptive Traffic Management Solution, Network of Smart Elements etc. Digital strategy, which can make use of emerging technologies, will increase the reach of those projects, thereby creating a bigger impact on the town. City Digital Strategy aims to go with the smart city initiatives resulting in faster achievement of goals formulated under Smart City Proposal.

### **II. Digital India Mission**

Digital India is an initiative by Government of India, aimed toward transforming the whole country into a digitally empowered society and knowledge based economy. The slew of measures taken by GoI includes e-governance, e-marketplace, and cashless payment channels, etc. so as to effectively implement these initiatives, a strong digital strategy is required which may help achieve the advantages of the Digital India mission. City Digital Strategy will try achieve the subsequent:

- To completely integrate the town ICT infrastructure with command center to interrupt silos in city government.
- Align and implement flagship projects (National Digital Literacy Mission, Sugam Bharat, India Stack supported Aadhaar ecosystem, Direct Benefit Transfer, Cloud etc.) under Digital India through our City Digital Strategy.
- So as to avoid reinventing the wheel by designing new policies and programs, City administration will align itself with all policies and framework designed by Government of India and Government of Maharashtra. For ex: In 2016,

City endorsed National Open Data Policy published by GoI (data. gov.in) instead of designing new policy separately.

- To simplify and deliver the services through single window platform and streamline the citizen experience
- to form use of newer communication channels and platforms(social media) so as to market citizen collaboration with city government
- to form better policy-making decisions by utilizing improved data analytics

### III. IT Policy Government of Maharashtra

City Digital Strategy is aligned with state IT policy and encourages use of existing policy and processes defined under Maharashtra State IT Policy.

#### 6. Complexity and Impact Assessment Framework:

With the arrival of latest technologies, there's an ever-growing list of digital projects under Pune Municipal Corporation and Pune Smart City Development Corporation. Because the resources are limited and therefore the need of the hour is to maximize the advantages from the projects, it becomes important for city administration (PMC and PSCDCL) to rationalize its decisions in terms of prioritization of varied projects. Prioritization ensures timely achievement of digital strategic goals and objectives.

FACTOR	SCORE 1	SCORE 2	SCORE 3
IMPACT	LOW IMPACT	MEDIUM IMPACT	HIGH IMPACT
COMPLEXITY	LOW COMPLEXITY	MODERN COMPLEXITY	HIGH COMPLEXITY

**Table 1 : Score Index**

In order to attain the projects, a structured and objective assessment approach is employed which becomes helpful in achieving consensus and balancing the requirements of both PMC and citizens.

Following factors are utilized in evaluating and scoring the projects:

#### Impact Assessment

In order to measure the impact of identified projects under Digital Strategy following factors are considered to evaluate the impact on common citizen's day-to-day life which are as follows:

- **Social Impact**

This factor assesses the social (engagement, collaboration) impact of the given project on community or society.

- **Economic Impact**

Economic impact will be in terms of increased productivity and reduction in opportunity costs due to the given project.

- **Environmental Impact**

This factor assesses the environmental (carbon footprint, reduction in fuel consumption etc.) impact of the given project on community or society.

- **Impact on City Operations**

This factor will focus on include improvement in internal efficiencies in the form of quick Turnaround Time, effective delivery of high quality services

## Complexity Assessment

Projects are also scored based on complexity of the given project. Complexity assessment framework consider following factors to gauge the complexity score of the given project .These factor evaluates the intricacy/complexity on three dimensions:

### • Technological Complexity

Technology complexity factor assesses the maturity of technology used in the given project. Project will score high if given technology is relatively newer or unstable or is yet to be customized to fit Indian context.

### • Cost Complexity

This factor assesses the complexity involved over project cost dimension. Cost intensive project will be rated high than low cost intensive project.

### • Execution/Operational Complexity

Execution factor assesses the complexity of project execution involved in the given project. Project will be rated high if it requires complex execution ecosystem like if it cuts across various departments or government for permission etc.

## 7. Digital Maturity Assessment: Framework

Digital maturity is the level of use and assimilation of digital technologies in the government's internal and external organizational processes, while working with all types of stakeholders – residents, businesses, visitors and others. It assists in asking the right questions such as:

- Are we mature enough about the major digital challenges?
- Where do I stand in terms of use of technology, user experience and simplification of processes?
- What are our strengths and weaknesses, and are we fully aware of them?
- How can we position ourselves compared to others?

The assessment of digital maturity consists of six dimensions, through which we can analyze out digital maturity quotient. In other words, it helps us know how digitally capable and sound we are.

Earlier, we defined digital capability and used it to benchmark various cities around the globe. Here, we will map the digital capabilities of Pune with the six dimensions of digital maturity.

This mapping will give us an internal assessment of the digital capabilities under the purview of Pune and what is the level of maturity a particular capability component Pune has. Below is a matrix that has all the digital capability types mapped with level of digital maturity dimension for that capability.

To illustrate, the online digital capability of Pune, the strategy and leadership maturity quotient is medium. This means the presence of vision and strategy in the implementation of online capability projects in Pune is currently at medium level.

## 8. CONCLUSION:

Pune is a leader in digital civic engagement. However, more needs to be done from both the government and the citizen front to strengthen the position. This city digital strategy report outlines a path to realize this goal and make Pune as the leading city in India to implement a well-rounded digital strategy for the entire city.

Digital technology enables transparency, innovation, access, public input and participation in the democratic process. By connecting all the stake holders viz, government, citizens and business through a common platform and enhancing the digital resources, the city of Pune will pursue a holistic digital strategy and by doing so, will become a leading city in India.

## REFERENCES:

1. Amit Dhorde, Sayantan Dasand, Anargha Dhorde (2012): Evaluation of land use/ land cover changes in Mula-Mutha Watershed Pune Urban agglomeration Maharashtra, India, based on remote sensing Data. Earth Science, 5(III), 108-121.
2. Desai et al. (2009). Application of remote sensing and geographic information system to study land use/land cover changes: a case study of Pune metropolis. Advances in Computational Research, 1(2), 10-13.
3. Emtiaj Hoque et al. (2013). Analyzing Urban sprawl using Geoinformatics: A case study of Pune. Institute of Environment Education & Research, Bharati Vidyapeeth University
4. Jiaswal, R.K., Saxena, R. Mukherjee. (1999). Application of remote Sensing technology for Land use/Land cover analysis. Photnirvachack: Journal of Indian Society of Remote Sensing, 27, 123-127.

5. Magda Metwally & Sahar Soliman Abdalla. (2008). Impact of Gated Communities on the Urban Development of New Cities in Egypt.
6. Mckinsey and Co. (2014). Indian's Urban Awakening and Implication for Pune. Pune International Center, p.15.
7. Pune Municipal Corporation (2010). Comprehensive Mobility Plan for Pune City, Published by PMC, Chapter 3.
8. Rupali P Zope. (2013). The planning Strategies for urban land use pattern: A case study of Pune city. International Journal of Innovative Research in Science, Engineering and Technology, 2(7).
9. S.B Nalavade (2000). Changing Geography of Pune Urban Area. Journal of Ecological Society, 13/14:5-7.
10. Shekhar Sulochana. (2009). Globalizing Indian Cities - spatial reference to Pune Globalization: Issue and challenges for India, Department of Geography, Smt. Parvatibai Choughule college, Margo, Goa.
11. Sudhira H.S. (2008). Unpublished PhD. thesis "Studies on urban sprawl and spatial planning support system for Bangalore", Centre for Sustainable Technologies and Department of Management Studies Indian Institute of Science Bangalore
12. Tereza Kolarikova. (2010). Gated communities in Prague, Thesis No. 32, Department of Real Estate and Construction Management , Royal Institute of Technology, Stockholm.
13. Tewari Vinod. (2011). Managing the Urban fringe of Indian Cities. Published by Rawat (Urban Fringe on Indian Cities) pp.16-23.
14. Uttam K. Roy (2005). Development of New Townships: A Catalyst in the growth of rural fringes of Kolkata Metropolitan Area (KMA). The Annual Conference of HUDCO Chair 2005.

# EMERGING TRENDS IN MANAGEMENT

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## ABSTRACT:

*The land sector is one among the foremost internationally renowned sectors. In India, land is that the second major sector/employer following agriculture and is scheduled to rise at 30% over subsequent decade. The intention of this study is to stress the imperative facets of Indian realty market. Firstly; this paper studies the event tendency of land sector of India. Secondly, this paper spotlights on the increase and fall of Indian realty market and therefore the drivers that led to those boom and bust. The study primarily focuses on the positive and negative impacts of most up-to-date land bill on public also as on construction conglomerates of India.*

## 1. INTRODUCTION:

Currently, the important estate and construction sectors are playing a central role within the overall growth of India's core infrastructure. The important estate industry's magnification is connected to progress within the retail, hospitality and leisure industries, fiscal services and knowledge technology enabled services (like BPOs or call centers) etc.

The Indian land sector has conventionally been governed by variety of small provincial players with moderately low levels of proficiency and/or monetary resources. Previously, the world has not promoted from institutional assets; instead, it's customarily spouted high value individuals and other unofficial supply of financing, which has led to low levels of intelligibility. These circumstances underwent a transform with in line with the sectors development, and at the present the important estate industry's dynamics replicate client's prospects of superior quality with India's rising amalgamation with the worldwide economy.

## 2. OBJECTIVES:

To review the progressions of boom and bane in land market to review the event periods of land in India to grasp the Govt policies regarding land sector. To study the various impacts of land regulatory bill.

## 3. RESEARCH METHODOLOGY :

The tactic used for this paper springs research. Secondary data from assorted sources like investigation reports, websites of state, conglomerates, trade unions, newspapers, realty magazines etc. are referred.

## 4. THE RISE AND FALL OF INDIAN LAND SECTOR:

Real estate may be a quality class that stipulates expert skills. The intricacy adjoining this sector is increasing within the Indian context. India has its own distinctive and vital complexities and business isn't an exemption thereto. Land is an important component within the configuration and development of all businesses and gradually growing into an immense business itself. Intrinsically the performance of realty sector depends mainly on the performance of the market and therefore the commerce especially.

### Land Boom in India :

According to JLL India, the Indian economy grew at 7.3% during the fiscal year (FY) 2014-15, which is above the anticipated GDP rate of 6.8%, and is scheduled to form a rate of growth within the range of 7-7.5% within the next fiscal year i.e. 2015-16. If this propulsion continues, supported by a primitive business environment and government policies, the country will balance to realize a two digit rate of growth within the upcoming years. Until 2004, no Foreign Direct Investment (FDI) was allowed in India, but then, the Indian land sector had seen an excellent boom for variety of years i.e. from 2006 to 2013. Below are the key reasons for the boom and downfall of Indian land sector.

Affirmed below are the dynamic forces that have led to the important estate boom within the nation:

- Flourishing economy; improved GDP (Gross Domestic Product) up to 7.8% once a year.
- India's materialization as a striking off shore place and accessibility of team of well capable engineers and managers.
- Development of giant confined units of key companies including TCS, ICICI, Google, HDFC, KPMG, EY and American Express.

- Rise in not reusable income and increasing bourgeoisie, escalates the demand for eminent residential housing and property as an investment option.
- Ingress of proficient companies outfitted with capability in land development
- Liberalization of legal verdicts and processes by the leading bodies, promoting investments in land.
- Advances in infrastructure services.

### **Downfall of Indian land Sector:**

The expansion of the important estate sector, in spite of its massive potential to feature to India's economic development and its broad service providing capacity, is confined by many factors. Despite the economic downturn reinforcing, there's good scope of recovery within the residential market across the highest eight cities of India. While sales have bogged down by around 20 per cent during January - June 2015 contrasted to an equivalent period previous year, also new residential units coming into the market have dropped by 40-45% across all cities.

Affirmed below are the causes that have led to land downfall in India:

- Loan interests on houses are exceptionally high.
- Timely possessions of projects aren't given by sizable amount of developers.
- Agreement and approval processes after completing several obstacles convince be awfully lengthy.
- A largely throttled supply route and of scheduled lack of appropriate organizational funding are a number of the chief looming factors.
- Record deflation of Indian rupee against dollar and political impasses.
- Due to extreme competition in prime cities, quality of construction is additionally getting poor.
- Housing demand is increasing day by day thanks to extensive migration of individuals from rural to urban areas (Urban Sprawl) and provide is restricted.
- Illegal practices by several land players regarding promotion of projects. Absence of national land policy or regulatory bill.

### **5. REAL ESTATE (REGULATION AND DEVELOPMENT) BILL 2016:**

The Bill, which was initiated within the Union Cabinet in August, 2013, got granted by the Parliament in June 2016.

#### **Defining land Bill**

A bill to line up the important estate regulatory agency for ruling and endorsement of the important estate sector and to form sure sale of homes, apartment or building during a competent and apparent manner and to defend the interest of consumers within the land sector and establish the jurisdiction to listen to petitions from the verdicts, directions or commands of the authority and for issues connected therewith or subsidiary thereto.

#### **Highlights of land Bill 2016**

The bill offers a uniform regulatory atmosphere, to guard buyer interests, help quick arbitration of disputes and ensure methodical growth of the important estate sector. It aspires at reinstating buoyancy of the common public within the land sector by instituting lucidity and liability in land and housing businesses. Main underscores are listed in figure 1.

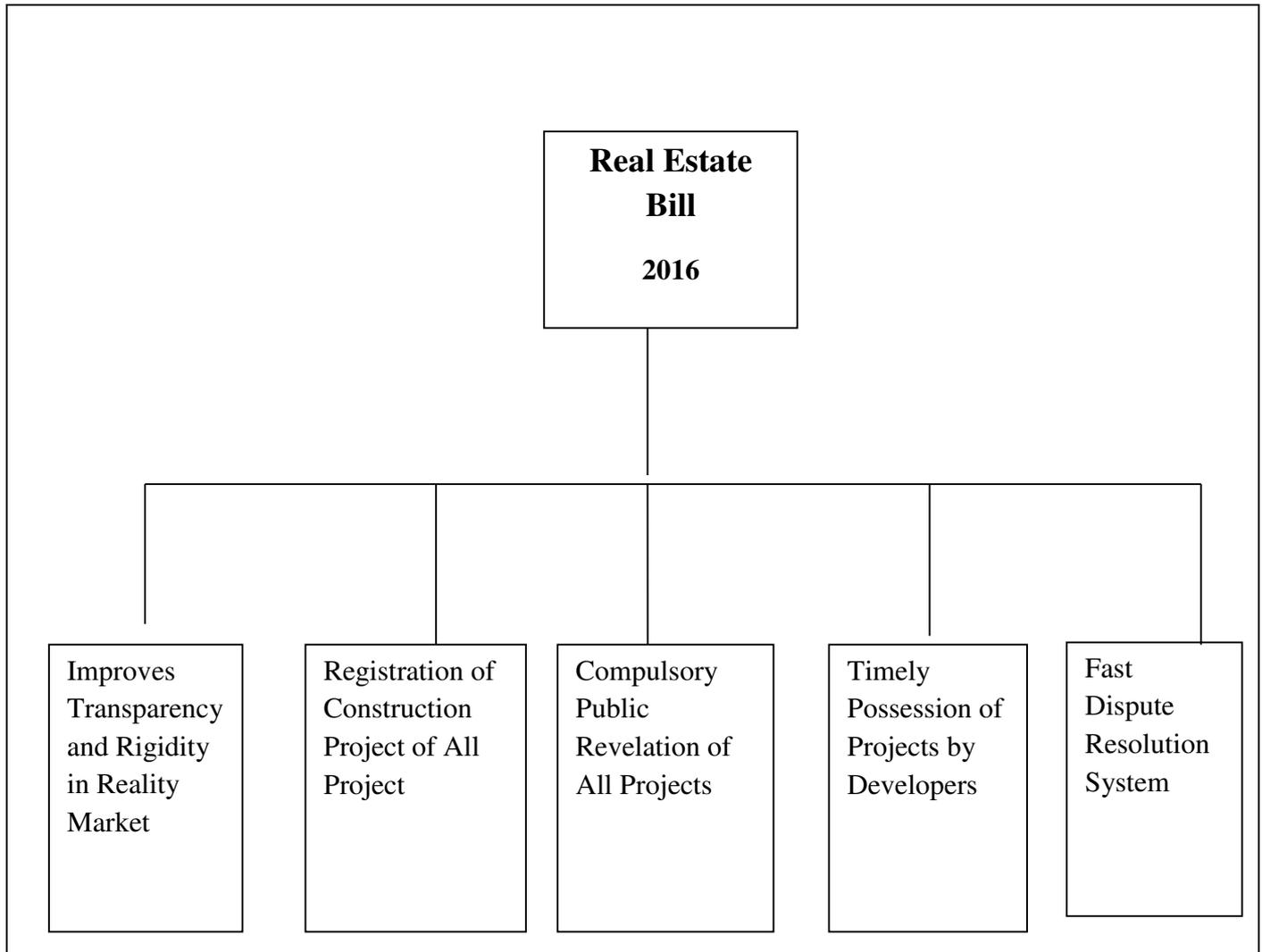


Figure 1 Top five features of real estate bill

## 6. Features:

- **Pertinence of the bill**  
The planned original bill was valid for residential land. It's now anticipated to surround both residential and commercial land.
- **Formation of land dictatorial authority**  
The bill provides for the founding of 1 or more land regulatory agency in each state for supervision of land operations. It also recommends employing one or more arbitrating officers to settle quarrels and oblige reimbursement and interest.
- **Listing of land projects and mediators**  
Developers need to compulsorily register all projects with the concerned land regulatory agency of the state. land mediators who decide to sell any plot, apartment building or building even have to urge themselves listed with the authority.
- **Mandatory public revelation of all project information**  
The bill intends obligatory public revelation norms for all recorded projects like details of advertisers, project, outline plan, plan of progress works, property status, status of legal approvals and disclosure of performed concords, names and official addresses of land mediators, freelancers, contractors, designers, structural engineer, consultants etc.
- **Responsibility of promoter**  
The bill brings out the roles of developers including confession of all appropriate information of project, devotion to official plans and project designs, responsibilities regarding reality of the classified advertisement purchasable or catalog, refinement of structural faults and repayment of capital in cases of evasion.

- **Obligatory margin of 70 per cent**

Constructors will now need to put down a minimum of 70% of the sale progresses, counting land cost, during a separate bond account to satisfy building cost. As per the previous proposal, it had been 50 per cent or less of sale progresses. This is often intended at avoiding developers from averting money raised from allottees.

- **Obedience to declared plans**

Under this bill, developers are debarred from changing plans, structural blueprints and condition of the plot, dwelling or building without the approval of two-third allottees after revelation. However, small additions or variations are permissible on architectural and engineering basis.

- **Roles of land mediators**

The bill makes it compulsory for land mediators to sell assets registered with the governing land authority. they're also requisite to take care of account books, evidences and certificates and are banned from getting implicated in any iniquitous trade practices.

- **Rights and jobs of allottees**

The bill brings out the proper of the allottee to achieve phase-wise time agenda of project and claim ownership as per promoter assertion. Allottee is additionally permitted to compensation with interest and reimbursement for default by the promoter. On their part, allottees must make imbursements and perform responsibilities as per contract.

- **Role of land dictatorial authority**

consistent with the bill, the authority must act because the central agency to arrange attempts concerning development of the important estate sector and provides essential guidance to the acceptable government to form certain the event and encouragement of a transparent, competent and spirited land sector.

- **Fast track quarrel resolution system**

The bill also sets up a fast-track quarrel settlement mechanism through arbitration and institution of a specialized land matter court. The courts will now need to pass judgment of cases in 60 days as against 90 days planned before and regulatory authorities to rearrange complaints within 60 days only.

- **Penalizing measures just in case of disobedience**

For incorrect revelation of data or for not obeying with the confessions and requirements, payment of fifty of venture cost are going to be requisite. The bill provides dictatorial authorities the control to abandon project registration just in case of constant breaches and choose further strategy regarding conclusion of such projects.

## 7. Impact of land Bill

There was a paramount need of official land bill for regulation and development of land sector.

## 8. Top Concerns of Buyers

- With many ventures within the higher stages of construction, or at the stage of possession, more lucidity is required on the relevancy of the vital phrases of the bill on current projects.
- Apparent procedures are necessary on whether projects newly approved, but not officially commenced, would be directed by the bill or not.
- Thus, clearness on the reason of the project cost/construction cost could help shun uncertainty at a later stage.
- No enclosure of any instructions concerning the operation and maintenance segment of the project until renounce of same to resident's welfare association.

## 9. CONCLUSIONS:

The problem is that the important estate sector in India features a massive information irregularity, the businesses have all the knowledge and there's no means to verify if the knowledge they're displaying out is correct. For instance, the prevailing price inclination in any certain locality. Indeed, the important estate market in India at the present is analogous to the stock exchange went to be within the 1980s and 1990s; the important estate commerce in India must be cleaned up along analogous lines. The real estate sector has been among the sectors nastiest hit by the universal economic recession, which alongside high interest rates within the countenance of continual inflation and holdups in securing obligatory government approvals, has kept suspicious home purchasers absent for the last few years.

The immense disparity between the decelerate cycles of then and now's that, nowadays, its buyer's feelings issue. Developers have more admittance to diverse sources of assets now but consumers just don't desire to shop for. After real state bill 2016, the tiny sets of optimistic developments gradually flowing into the economy have also started creating curiosity amongst customers.

Now, the Indian real estate conglomerates are counseled to focus on customer contentment. The world is not any more controlled by a developer, putting purchaser anticipations at the offstage and carrying on business at his own

engaging willpower. The government of India is additionally loyal to the important estate sector. In august 2015, central ministry granted the 100 smart cities project in India; the Govt has also elevated foreign direct investment (FDI) frontiers to 100% for giant integrated townships and other land projects alongside special economic zones (SEZs).

#### **REFERENCES:**

1. Christopher Crowe et al (2011): How to Deal with Real Estate Booms - Lessons from Country Experiences: International Monetary Fund, Working Paper 11/91.
2. Christopher Crowe et al (2012): Policies for Macro financial Stability - Managing Real Estate Booms and Busts: International Monetary Fund, Working Paper 11/02.
3. G.S. Popli, R.S. Sing and Manish Madan (2013): Challenges of Economic Recession and Investment Scenario in Real Estate Sector of India: Social Science Research Work, pp 1-15.
4. Karsten Lieser, Alexander Peter Groh (2011): The Determinants of International Commercial Real Estate Investments: IESE Business School, Working Paper 935.
5. Prashant Das et al. (2013): Real Estate Development Process in India: Journal of Real Estate Literature, Vol 21, No 2, pp 271-292.
6. Ramprakash Kona, S.S Prasad Rao and U. Devi Prasad (2016): Trends in Indian Realty Sector - A CRM Framework for Real Estate Entities in the Changing Environment: International Journal of Innovative Research and Development, Vol 5, No 7, pp 165-175.
7. Sukrit Basu (2014): Study of Emerging Trends in Indian Residential Real Estate Market with Reference to Pune: Abhinav National Monthly Refereed Journal of Research in Commerce & Management, Vol 3, No 6, pp 70-83.

# A Study of Impact of GST on Micro, Small and Medium Enterprises (MSME)

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## 1. Introduction:

The new tax namely —Goods and Services Tax (GST) has come into effect on 1 July 2017 and has become a game changer for all sectors of the Indian economy. This has brought a dramatic change in India's tax system since independence and has changed the face-lift of the indirect tax system. The main purpose of using the GST is to simplify the complex tax structure in the supply of goods and services. Initially, the changes had some problems affecting some of the short-term negative effects. The previous indirect tax framework had the challenges of duplication and tax evasion, with the exception of other issues/ difficulties, both technical and the perception of low-income practices by increasing debt, reduced prices, global inflation, free movement of goods, etc.

A key feature of GST is to eliminate the effect of tax cascading by making the credits more visible. The aim is to ensure that businesses get tax exemption in the form of Input Tax Credit i.e ITC. In addition, it aims to avoid tax evasion and to eliminate the disputed tax system between the State and the Central Government. The GST has simplified the tax calculation process and raised the tax base for indirect tax collection. As a result of using GST, almost all sectors of the economy are directly or indirectly affected.

### 1.1. Introduction of MSME:

The Government of India has enacted the Micro, Small and Medium Enterprises Development (MSMED) Act, 2006 in terms of which the definition of micro, small and medium enterprises is as under:

- Enterprises engaged in the manufacture or production, processing or preservation of goods as specified below:
  - A micro enterprise is an enterprise where investment in plant and machinery does not exceed Rs. 25 lakh;
  - A small enterprise is an enterprise where the investment in plant and machinery is more than Rs. 25 lakh but does not exceed Rs. 5 crore;
  - A medium enterprise is an enterprise where the investment in plant and machinery is more than Rs.5 crore but does not exceed Rs.10 crore.

In case of the above enterprises, investment in plant and machinery is the original cost excluding land and building and the items specified by the Ministry of Small Scale Industries vide its notification [No.S.O.1722\(E\)](#) dated October 5, 2006.

- Enterprises engaged in providing or rendering of services and whose investment in equipment (original cost excluding land and building and furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED Act, 2006 are specified below.
  - A micro enterprise is an enterprise where the investment in equipment does not exceed Rs. 10 lakh;
  - A small enterprise is an enterprise where the investment in equipment is more than Rs.10 lakh but does not exceed Rs. 2 crore;
  - A medium enterprise is an enterprise where the investment in equipment is more than Rs. 2 crore but does not exceed Rs. 5 crore.

### 1.2. NEW DEFINITION OF MSME 1<sup>ST</sup> JUNE 2020 :-

S.O. 1702(E).—In exercise of the powers conferred by sub-section (1) read with sub-section (9) of section 7 of the 'Micro, Small and Medium Enterprises Development Act, 2006 (27 of 2006) and in supersession of the notification of the Government of India, Ministry of Small Scale Industries, dated the 29th September, 2006, published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section(ii), vide S.O. 1642(E), dated the 30th September 2006 except as respects things done or omitted to be done before such supersession, the Central Government, hereby notifies the following criteria for classification of micro, small and medium enterprises, namely:— (i) a micro enterprise, where the investment in Plant and Machinery or Equipment does not exceed one crore rupees and turnover does not exceed five crore rupees; (ii) a small enterprise, where the investment in Plant and Machinery or Equipment does not exceed ten crore rupees and turnover does not exceed fifty crore rupees; (iii) a medium enterprise, where the investment in Plant and Machinery or Equipment does not exceed fifty crore rupees and turnover does not exceed two hundred and fifty crore rupees. This notification shall come into effect from 01.07.2020

## 1.2 Need and Significance of the Study:

Small scale industrial sector is an important segment of Indian economy. It generates employment opportunity next to agriculture sector. India is divided into 36 states including union territories among which some of the states such as Uttra Pradesh, West Bengal, Gujarat and Tamil Nadu and Maharashtra are industrially advanced and retaining the dominant position in India. At present, the state of Maharashtra State is divided into five division viz., Marathwada, Western Maharashtra, Vidharbha, Khandesh and Kokan. From which Marathwada is an industrially and economically backward district in Maharashtra. Some of the SSIs in Marathwada are flourished a lot and some of the mare not showing good performance. So, the researcher is interested to take up the research work impact of GST on Micro and Small Enterprises in Marathwada Region of Maharashtra.

## 2. Review of Literature:

Deshbandhu Gupta(1997) wrote in his study that GST system help the nation in best utilization of available talent. Soufani (2003) found that Goods and Service tax system reduces the compliance costs of small and medium enterprises. Pandit (2015) found that Goods and Service tax help to simplify the process of indirect taxation. It will bring many benefit such as availing of input tax credit, single taxation system etc. This paper explained the impact of Goods and Services tax on MSME's. This explained that the tax returns are filed on the quarterly basis and due to this the owner is free from the taxation matters. If the registered people buy goods from unregistered dealer, then tax is paid by the registered person as per the provisions of reverse charge. Earlier there is no time limit Siddiq and Prasad (2017) found that Goods and Service tax likely to be beneficial for auto cement and organised retail sector, but will have a negative impact on oil & gas and SME's sector. Kumari (2017) concluded that there will be impact of Goods and Services tax on working capital requirement, increasing the interest cost and also impact on pricing policy on Small and Medium enterprise. Goods and service tax predicted to benefit micro, small and medium enterprise in long run. Jeff (2018) conducted a study on Goods and Services tax and collected data from various countries like UK, USA, New Zealand, and Australia. The study investigated the importance of small business in economic growth, and especially job creation, the high administrative and compliance costs of including a large number of small entities in the tax system. The study found that there is a high level of tax evasion because of high compliance costs on small industries.

Shalini Shukla & Ram Singh (2018) 1 there is mixed anticipation and different responses on GST from manufacturers, service providers, and different market intermediaries. There is lack of such studies, specifically in the context of India, that provide any empirical support on either positive or negative impact of GST. Thus, the present study sought to empirically analyze the performance of companies after one year of GST implementation. Probability sampling was used to get the relevant sample. A total of 192 BSE listed companies were taken for analysis. Financial parameters (total assets, profit, and market capitalization for FY2017 and FY 2018) and demographic variables (size and experience of companies) were used to analyze the impact of GST roll out. The results indicated that among all three financial parameters, only total assets were significantly different from the pre GST time (FY2017). Further analysis highlighted that age and size of the company also affected the equation and was found significant in influencing the performance of companies after GST implementation. Detailed analysis and results were subsequently discussed in this paper. The study brought forth new insights on effect of new indirect tax regime on financial performance of the companies in order to fill the research gap. The results of the study will be useful for policy makers, strategists, and managers to cope up with the challenges posed by GST.

M. Jayalakshmi & G.Venkateswarlu (2018)2 Goods and Services Tax (GST) is an indirect tax which was introduced in India on 1 July 2017 and was applicable throughout India which replaced multiple cascading taxes levied by the central and state governments. It's true that GST means „Great Step towards Transformation“, „Great Step towards Transparency“ in India and it is also true that someone gives „birth“ while someone else „nurtures it“. It has been long pending problem to streamline all the specific types of oblique taxes and put into effect a “single taxation” system.

## 3. Objectives of the Study:

- 1) To analysis the performance of MSMEs before and after implementation of GST.
- 2) To identify the consequences faced by the MSME in implementation of GST.

### 3.1 Hypothesis of the Study:

H<sub>0</sub> The goods and services tax (GST) doesn't makes the tax system easy and thus doesn't contributing in the growth of the MSME.

H<sub>1</sub> The goods and services tax (GST) makes the tax system easy and thus contributing in the growth of the MSME.

#### 4. Research Methodology:

1) Primary Data Collection:

To get the complete and accurate information about GST and its impact on MSME, a questionnaire for data collection will be used which will give true and correct information and opinion about GST and its impact which further helps in completing research.

2) Secondary Data Collection:

Secondary data will be collected through various books, periodicals, journals, various articles, and through internet etc

3) Period of Study:

The Period of study will be of 3 years i.e from 2017 to 2020.

4) Tools & Techniques of Analysis:

The collected data will be analyzed using different tools such as ratio analysis, averages, correlation, regression etc wherever necessary.

5) Geographical Area:

Geographical area selected for research is Marathwada Region. In this the respondents will be those MSME who have registered themselves under GST, from Eight Districts of Marathwada Region i.e Aurangabad, Jalna, Beed, Osmanabad, Latur, Hingoli, Parbhani, Nanded.

6) Sample of the research:

There are thousands of MSME's operating in marathwada. Due to large number of companies in the marathwada region the sample size is restricted to 200 representative companies from various fields of Manufacture or services which are registered under GST Act. For each group i.e MSME in Manufacture sector and MSME in service sector are asked to fill up the questioner, accordingly total sample size of respondent is 100 for companies related to Manufacture and 100 are related to Services. The MSMEs have been selected randomly in the different districts of Marathwada.

The details of the composition of sample (MSMEs) are as follows

Sr. No.	Place	MSME (Manufacture Sector)	MSME (Service Sector)	Total
1	Aurangabad	30	30	60
2	Jalna	10	10	20
3	Parbhani	10	10	20
4	Hingoli	10	10	20
5	Nanded	10	10	20
6	Beed	10	10	20
7	Latur	10	10	20
8	Usmanabad	10	10	20
		<b>100</b>	<b>100</b>	<b>200</b>

#### 5. Scope of Study:

The propose of study will cover the study of financial Impact of GST on the working of various MSMEs, as well as to study the impact of GST on the routine working of micro, small and medium enterprises. It also covers the study about changes in record keeping and hardship face by MSMEs due to sudden changes in indirect tax regime.

#### 6. Limitation of Study:

The proposed study does not provide the complete picture of this assessment, We will not, for example, systematically examine differences in content standards or test specifications, which may account for some of the discrepancies among test.

The proposed study will be done on the data available after 2017, and also in Marathwada region only.

#### 7. Direct impact of GST on small and medium enterprises:

GST will help and ease the process of starting a business in India. Earlier, every business in India was required to obtain VAT registration, which differs in every state, and the rules and regulations are different. Thus it was a very confusing procedure. However, under GST, the businesses have to only register for GST which will have a centralized process, similar to service tax. Currently, for any business, it is mandatory to make a VAT payment if the annual turnover is more than 5 lakh in few states and 10 lakhs in few other states. This difference in various states creates confusion. Under GST a business does not have to register or collect GST if the annual turnover is 10 lakh. This is applicable to every state. This will allow many small businesses which have a turnover between 5 lakh – 10 lakh to avoid applying

for the GST return. GST allows small and medium business to do business with ease in India, due to the less complexity. The distinction between the services and goods will be gone, and this will make compliance easier.

Several policy interventions along with technology and innovation will continue to play vital role in creating a business-friendly atmosphere for the SMEs. No doubt that GST is aimed to increase the taxpayer base, majorly SMEs into its scope and will put a burden of compliance and associated costs to them. But in the long run, GST will turn these SMEs more competitive with a level playing field between large enterprises and them. In fact, recently government has also formed a special committee to look after the issues faced by MSME sector in GST. It is urged to the industry that they proactively highlight the above issues and obtain the relief prior to advent of GST as once GST is implemented; the chances of respite would be very minimal for the sector. Furthermore, these Indian SMEs would be able to compete with foreign competition coming from cheap cost centers such as China, Philippines and Bangladesh.

#### REFERENCES:

- 1 R. Lavanya Kumari. (2017). Impact of goods and service tax (gst) on indian msme. International Journal of Research in Economics and Social Sciences, 7(7), 334-348.
- 2 Rani Jacob. (2017). The impact of goods and service tax on the micro, small and medium enterprises. Imperial Journal of Interdisciplinary Research, 3(10), 86-66.
- 3 Dr. I.Siddiq & Dr. K.Sathya Prasad. (2017). Impact of gst on micro, small and medium enterprises. Journal of Management and Science, Special Issue-1, 180-183.
- 4 Heimonen, T. (2012). What are the factors that affect innovation in growing SMEs? European Journal of Innovation Management, 15(1), 122-144.
- 5 Anubha Vashisht, Amita Chaudhary, & Priyanka. (2016). Role of SMEs in Indian Economy. International Journal of Management, 3(Sp. Iss.-1), 14-18.

# Investment Awareness Program (IAP): Need in Uncertain Market Conditions

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## **Abstract:**

*From ancient times people are highly interested in different types of direct and indirect investments. Now a day investment market has been changed drastically. Earlier peoples was made their investments in various assets like animals, houses, land, crops, precious metals, stones, sculptures etc. but day by day the form of investments has been changed to shares, bonds, debentures, mutual funds, commodities, projects, research, inventions, program etc. Last ten years, investment sector and market has drastically changed. Many new different segments has been introduced and filled with many attractive products for the deferent stakeholders. In the technological era nature of investment has been changing which creates inclusive effect on investors. Many saving and investment companies offered various offers and schemes to the investors, they can start their investment from very small contribution systematically to get maximum return from the market. Investment are depends on different angles of the market such as national and international economical changes, natural and environmental changes, technological changes etc. Due to these changes market suffers and it creates positive and negative effects on investor's investment tendency Investment is a capital activity by the investor to the national economy therefore every people should encourage toward investment. It is helpful to increase national capital to resolve different economical problems.*

*This paper is written after observation the habits of saving and investments of the 50 people, I have taken the opinions about saving and investment from them with structured questionnaire. I have also tried to sort out the need and importance of investment awareness among investors which make literacy to investors about their investment in different market conditions.*

**Keywords:** IAP, AMC, Investments, Saving, Market, Technology, Stakeholder, Uncertainty etc.

## **1. Introduction:**

Investment is a capital activity for the national economy. India has scattered society, mostly it is found in various income group of people as well as it spread over rural and urban area. Due to huge number of financial companies provides different saving and investment option to the peoples with different rules and conditions it become complicated to the investors. Investment and saving always creates confusion and uncertainty in the mind of common people. They consider that the saving is their investment and they could found unable to differentiate between saving and investment. Many people are unaware about the investment and proper investment planning. We can take some examples of successful investor like Warne Buffet, Rakesh Jhunjhunwala, Porinju Veliyath, Vijay Kedia, Nemish Shaha, Ramesh Damani, Ramdeo Agrawal, Dolly Khanna etc. who studied investment market properly and only that basis they achieved tremendous growth in his wealth through systematic investment. Investment is different concept than saving. Saving is an only a residual part of income and there is no proper planning by the person. In other side investment is a systematic saving of the person with proper vision and goal. Investment made by individual itself or under the observation of expert, professional, consultants, AMC etc. Therefore these two terms should be properly understood by the investor for their financial growth.

## **2. Objective:**

- To know the difference between saving and investment.
- To focus on the need of Investment awareness program.
- To study of investment awareness programs helps to investors in different market conditions.

## **3. Research Methodology:**

This Research Paper is constructed on the basis of Secondary data which is collected from various sources which include different articles, Journals, Article, Magazines, Periodicals, Research Works, News Papers, web sites of government of India for digital literacy and all the research related Web sites.

## **4. Research Question:**

- There is no association with the investment awareness and saving.
- There is no association with the investment and market conditions.

### 5. Meaning of Saving and Investment:

**Saving:** Saving means the part of income which is not used for consumption by the individual or saving means the remaining part of income of the person for specific time period.

**Investment:** Investment means the part of income which is investing funds in different capital assets which generate specific return to the investor. It is systematic and regular in nature. Generally investment has two types short term and long term. These two investment options can be used in all types of investments. From last 2 to 3 decades investment awareness has been implementing by different institutes and organization. Investment sector has one of the new emerging segments of the market through which government can achieved many economical objectives.

### 6. Observations from the population:

Generally Investments are made by investor themselves they use their past investment experience and some of them found investment trading under observation of various service provider like Bank, AMC (Assets Management Company), Broker, Agent, Consultant, family friends etc. After data analysis following are the different facts revealed.

**Investment in Shares:** In case of short term investment made in share market there are 64% investors found in manage their investment themselves whereas 36% investors found investment under the expert consultation that is found in case of long term investment 58% investors found in manage their investment themselves whereas 42% investors through others.

Sr. No.	Type of Investment	No. of Respondents	Investment By Self	Investment Through Other
1	Short Term	50	32	18
2	Long Term	50	29	21

\*Investment preferred only in **Share Market (NSC/BSE)**

\*Questionnaire collected by 50 respondents (Investors Only) by telephone.

\*Others (Bank, AMC (Assets Management Company), Broker, Agent, Consultant, family friends etc.)

**Investment in Mutual Fund:** In Mutual Fund Market investment for short period 70% of investors are invest money themselves and only 30% people found investment through other people whereas long term investment 76% investors invest their money self and 24% investor goes with the expert.

Sr. No.	Type of Investment	No. of Respondents	Investment By Self	Investment Through Other
1	Short Term	50	35	15
2	Long Term	50	38	12

\*Investment preferred only in **Mutual Fund**

\*Questionnaire collected by 50 respondents (Investors Only) by telephone.

\*Others (Bank, AMC (Assets Management Company), Broker, Agent, Consultant, family friends etc.)

**Investment in Real Assets:** In case of investment in Real Assets investment for short period 90% of investors are invest money themselves and only 10% people found investment through other people whereas long term investment 86% investors invest their money self and 14% investor goes with the expert.

Sr. No.	Type of Investment	No. of Respondents	Investment By Self	Investment Through Other
1	Short Term	50	45	5
2	Long Term	50	43	7

\*Investment preferred only in **Real Assets (Gold/Silver/Diamond/Land/Plot/House)**

\*Questionnaire collected by 50 respondents (Investors Only) by telephone.

\*Others (Bank, AMC (Assets Management Company), Broker, Agent, Consultant, family friends etc.)

## 7. Need of Investment Awareness Program:

Almost 60% people makes their investment without help of proper guidance due to that they are not to able to earn that much profit that could be. IAP is helpful to encourage more and more people to different investment. It can help to increase the economical growth, living standard, income etc. of individual. IAP indirectly makes different advantages to the economy like increase revenue of the nation, increase in employment, social objectives of the economy and many more. IAP organized by government as well as non government sector because these both sector has established their financial organizations to sale their schemes and products. Combine efforts of the all type of organization to make awareness about investment in the society is helpful to achieve their ultimate goal.

## 8. Conclusion:

To attain basic object of the economy the people of the country should most aware about their investment. At the beginning to the investment they should concentrate on what to invest and when to invest and how much investment with different investment option. After making a proper analysis of investment it is also important that they should regularly monitor the investment very carefully. They should be professional with their investment. Many IAP has been organized by different institutes and organizations to attract more and more investors in different investment options. This paper has made an attempt to understand clearly of what is saving and investment, importance of investment awareness program in the economic growth and also it has tried to give need of investment awareness amongst the investors about different factors to be considered before investing.

## 9. Suggestion:

Investment Awareness Programs (IAP) plays important role to the investors for profitable investment and helpful to avoid unanticipated losses. There are many scopes to develop IAP throughout the investor community by investment institute with the use of new technology. IAP can be run through websites, mobile apps, conferences, seminars. Through this paper I want to suggests that there can by different opportunities for investment, employment etc.

## References:

- 1 Alex, W. (2011). Younger generations investing behaviors in mutual funds: Does gender matter? *The Journal of Wealth Management*, Vol. 13, No.4, 13-23.
- 2 Azizah, N., Nurfadhilah, Ramesh, Mior, A. (2013). Financial Literacy: A study among the university students. *Interdisciplinary Journal of Contemporary Research in Business*, vol. 5, no. 2 pp. 279-299.
- 3 Emily, C. (2015). Bankruptcy among the young in Malaysia crimps consumption, retrieved on 6 September 2015, from <http://www.reuters.com/article/malaysia-economy-debtidUSL3N1003QR20150906>.
- 4 Thushari Sewwandi. (2015). Decision Making: A Literature Conference: International Conference on Business and Information, University of Kelaniya, Volume: 6.
- 5 Lokhande, M. A. (2015). A study of investment awareness and patterns of savings and investments by rural investors. *Indian journal of Finance*, 9(7), 22-31.
- 6 Zhinal Azhar , Investment Awareness Among Young Generation, *Advances in Economics, Business and Management Research*, volume 36, 11th International Conference on Business and Management Research (ICBMR 2017)
- 7 Prof. Priya Vasagadekar,(2014) A research paper on investment awareness among Indian working women with reference to pune region, *International Journal of Scientific & Engineering Research*, Volume 5, Issue 6, June-2014 ISSN 2229-5518

# JOB OPPROTUNITIES WITH RESPECT TO ACCOUNTANCY, COMMERCE & MANAGEMENT

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## 1. INTRODUCTION:

Ethics in fiancé accounting done properly it helps in ascertaining profit & service as barometer for the ascertaining the financial condition & position of the business. It concerned how to make good & moral choices with regard to the preparation of financial information. Accountancy is the practice of recording, classifying & reporting on business transaction for a business. Introduction to accountancy journal, ledger & trial balance.

Accounting is a statement summarizing the record of transaction, In the form of credits, debits accrued and adjustments that have accords and have a effect on an assets, equity, liability or past, present and future revenue. Accounting is systematic and comprehensive recording of financial transactions pertaining to a business.

Accounting also refers to the process of summarizing, analyzing & reporting these transactions to oversight agencies regulations & tax collection entities.

Accountancy is the practice of recording classifying and reporting on business transactions for a business, it provide feed back to management regarding the financial result and status of organization there stake holders and investors etc.

Account is the statement showing the records, accounting is the action of book-keeping financial account and accountancy describes the duties of an accountant, the person whose job is to keep accountancy is in total effect of all actions taken by a business to produce reports that all stake holders, managers, investors, fund suppliers, owners & societies. All financial resources under their control.

## 2. The related courses of accountancy are as under:

- Accountancy course in UK
- Accountancy refresher course
- Chartered accountancy
- Computer accountancy
- Management accountancy
- Accounting & taxation
- Accounting finance
- Online accounting
- Etc.

## 3. Careers in Accountancy:

Accountancy career finding a job in the accounting field is smart decision, accounting is the field that is always be in demand, it is the field that you can continue to grow and move up inside your company they are so many different positions you can find the account field. There are so many opportunities in accounting field. For ex.

- Accountant
- Accounting clark
- Accounting manager
- Tax consultant
- Stock accountant
- Budget analyst
- Financial officer
- More jobs available in govt. sector, private sector & non govt. organizations etc.

## 4. E-Commerce:

It is also known as electronic commerce or internet commerce, refers to the buying and selling of goods or services using the internet, and the transfer of money and data to execute these transactions. Ecommerce is often used to refer to the sale of physical products online, but it can also describe any kind of commercial transaction that is facilitated through the internet.

Whereas e-business refers to all aspects of operating an online business, ecommerce refers specifically to the transaction of goods and services.

### **5. Opportunities in E-commerce:**

1. Shopping will become more seamless across online, mobile, and in-store experiences
2. Small retailers will dominate the content commerce space.
3. E-Commerce retailers will figure out how to convert mobile traffic.
4. Social networks will increase their product advertising capabilities.
5. The last mile could shift into the hands of small and mid-sized retailers
6. Product listing ads will expand across everything Google.
7. E-Commerce marketing coordinator
8. Content Developer
9. Web Designer
10. E-commerce Project manager
11. E-Commerce Developer

### **6. Opportunities in Management:**

Management majors are prepared to work in a variety of business organizations. Previous graduates have been successful in organizations in all industries, including manufacturing, health care, financial institutions, gaming, tourism, utilities, non profit organizations and governmental agencies. Specific positions, management graduates are having many opportunities as mentioned below.

### **7. Job / careers in Management:**

- Employee relations manager
- Senior employment analyst
- Human resources director
- Management consultant
- Financial analyst
- Accounts Manager
- Marketing consultant
- Compensation and benefits manager

### **8. Conclusions:**

With development of computer technology the World Wide Web has become the connection medium for the networks. Computer from locations that are geographically dispersed can talk with other person through internet. As with any new technologies there are positives and negatives associated with it's adoption. Finally, Accountancy, e-commerce & management jobs can serve as an information agent that provides information to all stake holder such as Govt, industries, suppliers, customers, owners of the business etc.

Accountancy, E-commerce & management it also creates new opportunities for education, academics, industry, retailer business, wholesaler & end-users. It appears that tremendous potential for providing career opportunities in this field.

### **References:**

- 1 www.epapereconomicictimes.com
- 2 www.epapertoi.com
- 3 Journal of Marketing
- 4 Ethics & corporate governance-S. K. Bhatia
- 5 Corporate Governance & CSR- J. P. Sharma

# Mahila Arthik Vikas Mahamandal (MAVIM) : An Overview

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## 1. INTRODUCTION :

Women empowerment has become a catchword today and possesses a big place in socio-economic development programmes of the govt. And why not? Women constitute half the planet population and contribute substantially to the all-round development of the planet. The planet Bank in its report (2006) aptly observes that ladies are often denied property and inheritance rights. An inequality trap may prevent generations of girls from getting educated; restrict their participation in labour market. Prof. Amartya Sen (1995) acknowledged that the gender tolerance of gender inequality is closely associated with notions of legitimacy and correctness. In family behavior, inequalities between men and ladies are accepted as natural or appropriate. Sometimes the choices concerning inequalities are taken and executed by the ladies themselves. Within the new world order no country can march ahead without inclusion of girls in development process.

Women empowerment may be a continuous process of enabling them to fight the forces that oppress them, provide them equal access to the resources and opportunities and control over the resources. Women empowerment (Kabeer, 1999) refers to the method by which those women who are denied the power to form strategic life choice for acquiring such ability. The planet Bank Report (2001) defines women empowerment because the process of accelerating the capacity of individual woman or groups of girls to form choices and to rework choices into desired actions and outcomes. The Indian government has made concerted efforts for advancement of girls in several spheres through five year plans and ladies welfare schemes. National Policy for the Empowerment of girls (2001) aims at creating conducive environment for ladies development, equality in political, economic, social and cultural spheres, and elimination of all kinds of discrimination against women. Women empowerment are often actuated through rural development programmes, economic interventions and confidence building and awareness creating campaigns. The term women empowerment refers to a variety of socio-economic activities which specialise in strengthening the economic position of poor women, creating confidence among them and increasing full support for his or her all round development. In recent years, women self-help groups have emerged as an efficient means of entrepreneurship development among women. Entrepreneurship features a strong potential for socio-economic empowerment of girls. Since the entire system is organised transparently, the thrift and savings can become informal banks for the Poor and of the Poor".

## 2. REVIEW OF EARLIER STUDIES :

Micro finance programmes are known for his or her potential to get income and employment and alleviate poverty. Rashtriya Mahila Kosh was found out within the year 1993 for providing micro finance services to women. The working women's Forum (WWF) was started in Madras in 1970 for assisting small women vendors and ladies living in slum areas. A study conducted by MYRADA (2000) had observed that the financial position of old women groups had improved to raise as compared of latest groups. So as to help poor women, The Activists for Social Alternatives had started a micro finance programme covering 2500 villages in Taminadu. A study conducted by Moyale, Dollar and Biswas (2006) in two villages of Rajasthan observed that after joining SHGs the ladies members had achieved social and economic empowerment in terms of collective efficiency, proactive attitudes, self-worth and self-sufficiency. Holvet (2005) observed that micro finance to poor women through women SHGs resulted into active participation of girls in deciding. Consistent with Hashemi (1996) women's access to credit helps significantly to the economic contribution by women, it makes possible a rise in asset holding by women in their name, they will exercise their increased purchasing power and benefited with higher level of mobility, political participation and involvement in major deciding. In contrast to above observations, Mayox (2001) acknowledged that micro finance has negative impact on poor women. Micro entrepreneurial activities increase the workload of girls and loan repayment pressure. The speed of return on their investment is lower. When income of girls is increased it's used for household activities. There has been a wider gap between the demand and provide of credit to women particularly rural women and naturally they need to believe money lenders for credit which is definitely available but at exorbitant rate of interest.

## 3. OBJECTIVES OF THE STUDY:

The major purposes of the study were:-

1. to review the socio-economic impact of girls SHGs on group members
2. to know the issues of girls self-help groups

#### 4. RESEARCH METHODOLOGY:

The study is confined to the ladies self-help groups promoted by the the Mahila Arthik Vikas Mahamandal (MAVIM) in Aurangabad district under Maharashtra Rural Credit Programme.

The corporation had found out 4546 women self-help groups covering quite 65,500 women under the Maharashtra Rural Credit Programme as on 31st March, 2002. The MRCP may be a poverty alleviation programme. It's MAVIM's experience that self-help groups are an efficient medium for bringing about the empowerment of girls. As on 31st March, 2007, the cumulative number of girl's self-help groups promoted by the MAVIM in Aurangabad district was 757. So as to review the impact of building women self-help groups, the groups completing two years period were selected for study purpose. As far because the selection of group members cares, two members were deliberately selected from each group, the amount of the chosen members was 150. . For the aim of knowledge collection, a well-structured questionnaire was went to obtain the responses. As well, the researcher has undertaken every possible effort to refill the gaps of data by conducting individual interviews.

#### 5. ECONOMIC IMPACT OF WSHGs:

In real sense, the importance of the programme depends on how it impacts the target groups. The responses indicated that 44.67% of 150 respondents could expand their business activities due to credit supply by their respective groups. Just in case of 27.33% women respondents that that that they had got gainful employment. It had been also noticed that 52.67% of the mixture respondents were satisfied with their increased income level due to group economic activities. Quite 64% respondents had been saving regularly and 30% became well familiar with financial matters like, record keeping, interest computation, depositing group savings with the bank etc. it had been noteworthy that quite 86% respondents were repaying their loans regularly. In nutshell, the group members had learnt the importance of normal saving and repayment of loan in time.

#### 6. SOCIAL IMPACT :

Actually it's extremely difficult to quantify social impact of micro finance on the members. Quite 60% of the respondents were experiencing the sensation of Social Security as their respective groups were raising voice against atrocities on women.

The info analysis indicated that 37.33% of the respondents had fought successfully against alcoholism and enforced the shopkeepers to close up their wine shops. Around one third of the respondents expressed that that that they had become more aware of social changes and were involved choose at family and village level. Women self-help groups were found engaged in social activities like, village cleanliness, health awareness programmes, anti-superstitions campaigns etc. so on confirm equal access and increased participation of girls in politics, panchayat raj institutions are expected to play a lively role.

As a results of political awareness created by the groups, quite 16.67% of the respondents had participated in Panchayat and first credit co-operative society's elections. Out of 150 respondents 5 members were PCCS members, 10 Panchayat members and a couple of of sarpanchs. Quite 60% indicated that that that they had enough confidence to affect bank officers et al. and discuss different issues in group meetings. 35% of the respondents had opined that after joining the group, that that that they had acquired good communication skills. That that that they had become more informed and knowledgeable because of group discussions and interacting with NGO and bank officers. Quite 89% of the respondents had been attending the meetings regularly. It had been observed women participation in government sponsored programmes, which was almost negligible earlier, had increased because of group activities in Aurangabad district. The info given in table-3 disclosed that the participation of girls members in Nirmal Gram was-44.66%, Mid-Day Meal-46.67%, Sarva Shiksha Abhiyan-30%, Pulse Polio Campaign-42%, Jalswaraj-47.33% and course programme was 29.33%.

#### 7. PROBLEMS FACED BY GROUP MEMBERS:

Women are amongst the poorest, the foremost vulnerable and underprivileged. As group members they need to face number of problems. The responses regarding the issues faced by the members are given in table-4. According to 74.67% respondents of the respondents marketing of the products was the foremost problem whereas lower and irregular income was the burning problem just just in case of 70% respondents. Around 60% respondents expressed that there are not any facility of coaching and guidance for contemporary business activities. It had been also found that quite 47% respondents had to borrow from local money lenders, relatives and neighbors because they were getting inadequate loans from groups. Another problem faced by 44% respondents was lack of numerical ability, which resulted in to their

exploitation. Around 40% respondents opined that unfair competition among groups was main hindrance within the way. Political affiliation and interference had been posing an enormous problem before self-help groups consistent with 35% women respondents. Political affiliation has become one among the explanations of group conflicts. Just in case of 32.67% respondents differences between group members and thus the leaders had led to non-functioning of group activities. The respondents indicated that indifferent attitude of banks (27.33% respondents), lack of proper planning and management (36% respondents), indifferent attitude of self-help group's promotion institutions (32% respondents) and migration for employment (28.67% respondents) were liable for slow progress of girls self-help groups in Aurangabad district.

## 8. CONCLUSION :

Considering the vast number of poor, discriminated and underprivileged women and thus the need of monetary services, there's tremendous scope for micro financing through WSHGs in India. The SHPIs, NBFCs, Banks and voluntary organizations are alleged to play an important role in micro-finance market. So on realize the target of poverty eradication, every have-not should have quick access to credit for starting small economic activities supported local resources. WSHGs, because it's clear, are instrumental in promoting women entrepreneurship. So conducive environment is required to be created within the country to provide boost to women self-help groups. Majority of the ladies don't have their own property and even earning women haven't any right to spend their own earning. Formal economic system still is averse to supply financial services to women. So on empower women economically, there's need of providing quick access to credit on one hand and promotion of girls entrepreneurship on the opposite side. because it's clear from Grameen Bank project of Bangladesh, Women and poor, if given small amounts of loan (micro credit) for little economic activities (micro enterprises) are often effective for eradication of unemployment and poverty. Women self-help groups can play a really positive role in socioeconomic empowerment of poor women. The micro credit summit (1997) held at Washington had stressed on provision of credit to 100 million of the world's poorest families to beat the issues of underemployment and poverty. MF can play an important role in achieving Millennium Development Goals and reducing the world poverty by 50% by the very best of 2015. India is that the house to 22% of the world's poor (Tenth five year plan-2002-07). Poverty reduction is feasible by providing quick access to credit for little entrepreneurial activities.

Empowerment of women are often promoted through socio-economic activities at grass root level. Confidence built up by SHGs helps women members to fight against injustice and secure their rights. Empowerment of women are often promoted through socio-economic activities at grass root level.

## REFERENCES :

- 1 Bhagyalaxmi, J, 2004, Women Empowerment: Miles to go, Yojana.
- 2 Das Prodepta, Self service-development magazine.htm
- 3 Hasemi, SM, 1996, Rural Credit Programmes and Women's Empowerment in Bangladesh, World Bank.
- 4 Hashemi S M, Riley, 1996, Rural Credit Programme and Women Empowerment in Bangladesh.
- 5 Holvet, N, 2005, The impact of Micro finance on Decision making Agency: Evidence from South India, Development And Change.
- 6 Kabeer, Naila, 1999, Resources, Agency, Achievements: Reflections on the Measurements of Women Empowerment, Development and change
- 7 Madheswaran, 2001, Empowering Rural Women through SHGs: Lessons from MRCP, Indian Journal of Economics.
- 8 Mayox, L, 2001, Taking the Down side: Social Capital, Women's Empowerment and Micro finance in Cameroon, Development And Change.
- 9 National Policy For The Empowerment of Women, 2001.
- 10 Rajput, T, 2005, Women Empowerment through SHGs, Lokrajya.

# Problems and Prospects Remedies of Small Scale Industries

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**Abstract:** In Indian economy SSI plays a vital role. Government is now announcing various schemes for the SSI sector. But today too there are various challenges before the small entrepreneur. So this paper tries to access the challenges and suggested some important remedies to overcome the challenges.

**Keyword:** MSME, SSI, industrial sickness.

## 1. Introduction:

After the independence of the country, the industrial development is rebutting of the past 60 years by facing many issues related to finance, investment, infrastructure, entrepreneurship, employment, import and Export, technological up-gradation and modernization with the development of the country.

Small-scale industries do not play much of the advantages because of their nature and size. In front of Small-scale industries have many problems in their manufacturing, trading, and service function. The Small-scale industries seriously handicapped in many ways i.e.finance problem, Raw Material, manufacturing, Idle Capacity, Technology, Marketing, Infrastructure, Project Planning, production policy, Government policies etc.The SSI cannot use their full potential they face many problems in their manufacturing process to this reason most of the small-scale industries going to sick industries.

## 2. Objectives of research:

1. To find out the problems and prospects of small scale industries.
2. To suggest some remedies to overcome the problems.

## 3. Research methodology and scope :

This paper is based on secondary data but for the relevance and accuracy some personal observation and personal interviews of entrepreneurs were added. Data is taken from different books, journals and official websites of the concern office. This paper is reviewed all the situation of Maharashtra state so whatever the result will produce may or may not be application to other states.

## 4. Result and Discussion:

The government of India has reserved certain items for the recommendation of various committees set for SSI. That committee suggested of exclusive production reserved for SSI the large-scale industries not allowed to produce reserved item for SSI. but around of all these scheme, policies and programs conducted various institute by MSMEs often face various problem related to their nature and scope like financial, raw material, marketing, poor quality utilization, poor management, problem working capital and technological up gradation etc.

**Figure No. 1.1 Problems faced by Small Scale industries:**



From the table no 1.1 it is clearly shown the factors which are affects of small scale industries. Actually there are external and internal factors due to it SSIs look into problems.

**Lack of Finance:**

There is an expression that goes, “people don’t plan to fail, they just fail to plan.” No entrepreneur going into business does so with a plan to fail, but insufficient access to working capital and other financing options is a vastfunder to a business’s lack of success and ultimate failure. Many factors go into a business entrepreneur’s lack of working capital, from a low credit score and inability to borrow from traditional financing sources to operational issues affecting cash flow. It is important for you as a business owner to understand the origin of the problem with respect to your lack of financial capability and alternatives to traditional funding, including working capital loans.

**Government policy:**

The government policies effect of the functioning of a small-scale industries unit by imposing certain restriction or leaving additional taxes. The government of India give several policies to SSI, the policies are categories broadly in policy initiative, Institutional support, Liberalization of SSIs, Infrastructural facilities, Small industry clusters, Marketing support, Institutional support, credit support, and Credit dispersion. The Central government announces its industrial policy resolutions. In all the industrial policy resolutions announced by the central government starting from 1948 onwards, gave a thrust for the promotion of small units. Central government announces financial, fiscal and infrastructure related initiatives for SSIs for its growth. Along with the central government, state governments also announce a suitable policy initiative.

**Employment:**

Employment problem is mostly related to labor problems in SSI. SSIs are generally located in backward regions which also pose a problem of recruiting skilled labor. The reason is First, skilled labors may be unwilling to work in these areas and secondly, the small industries may not afford to pay the wages and other facilities demanded by these workers and unskilled labor join for low wages rate but the training them is time-consuming process and also non-availability entrepreneurs are challenged with various other problems like absence, high labor turnover indiscipline, demand for high wages and strike etc.

**Raw Material:**

Small Scale industries generally depend on the local source of raw material. In view of the increasing the tempo of industrial activities, they have purchased of raw material in small quantities compared to large scale industries or cannot invest a huge amount in the raw material. Because of the shortage of credit and finance, the shortage of the right type of raw material at the standard price has affected the entire industrial sector.

**Infrastructure:**

The growth of SSI requires infrastructural facilities of an increasing scale, appropriate and institutional structure and prompt and adequate provision of finance. Most of the Small-Scale industries locate in backward areas are still facing infrastructural problems like power supply, water, drainage, transport, communication, marketing, and raw material. Thus, the absence of adequate infrastructure adversely affects the quality, quantity and production schedule of the enterprises which ultimately results in under-utilization of capacity.

**Sickness:**

The number of sick Micro, Small and Medium Enterprises has doubled in the last four years. The reply provides figures made available by the Reserve Bank of India, is the number of sick MSMEs during 2015-16 has doubled to 4,86,291 compared to 2,22, 204 sick units reported during 2012-13. According to the Ministry of Micro, Small and Medium Enterprises, there are around 3.6 crore MSMEs and these provide employment to 8 crore people. They produce over 6,000 products which account for 8 percent of the GDP, 45 percent of manufacturing output and 40 percent of exports.

**Lockdown situation**

Due to pandemic covid-19 many SSIs closed. It was highly impossible for them to run the business again after taking huge loss. In Aurangabad region more than two lakh jobs were left. So this situation was very panic for them. Total six month production and services was not in working. This type of pandemic is also one of the major issue before the SSIs.

**Table No 1.1** Reason for sickness MSMEs in India

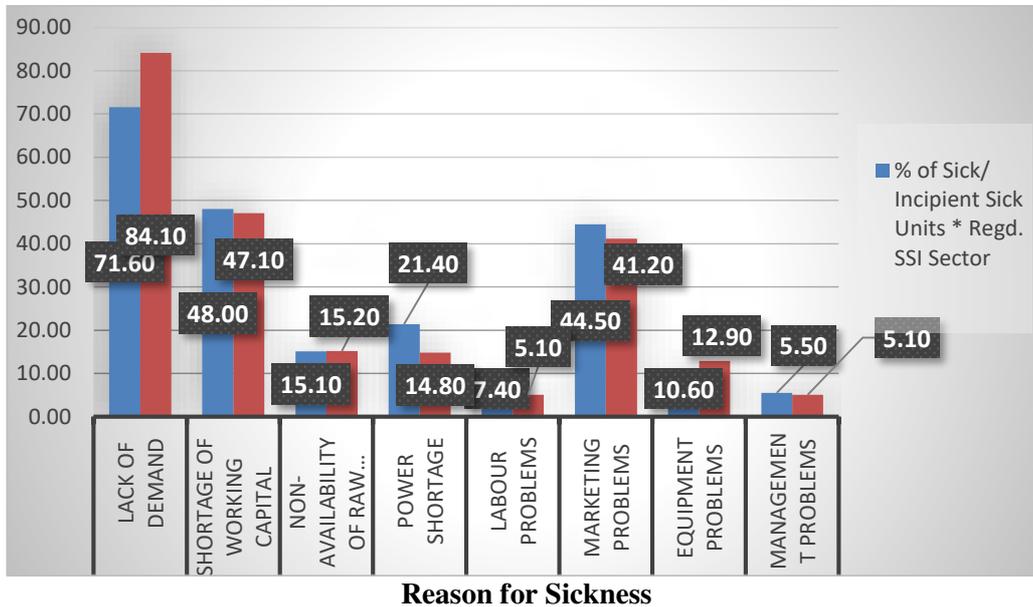
Sr. No	Reason for Sickness	% of Sick/ Incipient Sick Units *	
		Regd. SSI Sect	unread. SSI Sect
1	Lack of Demand	71.60	84.10
2	Shortage of Working Capital	48.00	47.10
3	Non-availability of Raw Material	15.10	15.20
4	Power Shortage	21.40	14.80
5	Labour Problems	7.40	5.10
6	Marketing Problems	44.50	41.20
7	Equipment Problems	10.60	12.90

8	Management Problems	5.50	5.10
	Total	224.10	225.50

\*The total will exceed 100 %, as some units reported more than one reason.

Source: MSMEs census report 2018.

Chart No.1.1



From the above table and chart it is clearly shown that how SSI is suffer due to various reasons. 84.10% SSIs reported that due to lack of demand in the market these units get sick. With the help of eight different parameters it can be clearly conclude that due to above issues SSI has committed sick.

Figure No 1.2  
 Prospectus of Small-Scale Industries

- 1. Technical Services
- 1. Vendor Development Programmes
- 1. Institutional Support For MSMEs.(State)
- 1. Management Development Programmes and Consultancy
- 1. Skill Development Trainings
- 1. Export Promotion
- 1. National Awards to MSME Units
- 1. State Level Advisory Board on MSME
- 1. Special Assistance

**Technical Services:**

Technology is the key to enhancing an industries modest advantage in today’s dynamic information age. Small enterprises need to grow, develop and implement a technology approach in addition to financial, marketing and operational approaches and adopt the one that helps integrate their operations with their environment, customers and

suppliers. The SSI units to enticement the benefit of technology services, NSIC, SIDBI, and Nationalised bank has taken an active approach in providing technical services to SSI. The technical service supported agencies to provide the following services.

- Preparation and updating of Project Profiles
- Preparation of Detailed Project Reports and Feasibility Reports
- Guidance on selection of Plant & Machinery and preparation of plant layout
- Information on the availability of machinery and raw material
- Guidance on quality standards/quality control methods
- Information on the latest products and technology
- Information on Intellectual Property Rights issues
- Information on Bar Code
- Preparation of Technical Reports and carrying out Inspections for certifying techno-managerial capabilities of MSME Units
- Guidance on testing of raw material, semi-finished and finished products
- Assistance for new product development
- Guidance on the modernization of units.

### 5. Vendor Development Programmes:

MSME DI Mumbai provides the Institute organizes Vendor Development Programmes (National and State Level) for Government Departments/ PSUs / Railways /Defence / LSU's with objective of taking Micro and Small units and Govt. Departments and PSUs on a common platform for the business promotion of MSEs. The creation of a database of capable Micro and Small Units and providing their details to Government Departments/PSUs / Railways / Defence / LSU's has special significance in the context of new policy. The institute organizes Seminars and Workshops on Public Procurement Policy and brings awareness about the changes in the Policy. It also supports other organizations in their Buyer-Seller Meets etc.

### 6. Institutional Support for MSMEs:

The institutional support for SSI refers to the part of the economic environment of the industry. The institutional support involving of authorities and institutions whose decisions and active support in form of laws, regulation, financial and non-financial help bring a lot of changes in the functioning of any business. For the development of SSI, the SIDBI, Central government and state government established various institute i.e.

- a. Directorate of Industries
- b. Udyog Mitra
- c. Maharashtra Industrial Development Corporation (MIDC)
- d. Co-Operative Industrial Estates
- e. Maharashtra Small Scale Industries Development Corporation (MSSIDC)
- f. Maharashtra State Khadi and Village Industries Board (MSKVIB)
- g. Maharashtra Centre For Entrepreneurship Development (MCED)
- h. Small Industries Development Bank of India (Sidbi)
- i. Khadi and Village Industries Commission (Kvic)

### 7. Management Development Programmes and Consultancy:

Under this activity, the Management Development Programmes are organized with the objective of improving the managerial competence of MSME units. The areas of MDP include Industrial Management, Marketing Management, Industrial and Commercial Laws, Financial Management, Export Marketing etc.

### Skill Development Trainings:

The institute is organizing Skill Development Trainings in the Institute as well as in out reached areas for the benefit of educated unemployed youths. Some of the programs are exclusively for SC/ST, Women and Weaker Sections. The activity includes:

- a. Industrial Motivation Campaigns.
- b. Entrepreneurship and Skill Development Programs.
- c. Entrepreneurship Development Programs.
- d. Faculty support to NGOs and Academic Institutions.

### **Export Promotion:**

Under export promotion activity, the institute provides training in Export Marketing, Export Procedure and Documentation and Export Management are provided to MSME Units. The export-worthy units are also motivated to participate in international trade fairs and apply for different awards to bring their achievements in the limelight.

### **National Awards to MSME Units:**

The Institute gives due publicity for the Scheme of National Awards and invite applications and places them before the State Level Selection Committee for recommending the units from the State to National Level Selection Committee.

### **State Level Advisory Board on MSME:**

There is a State Level Advisory Board for coordination work of offices working for MSMEs in the state of Maharashtra. The Secretary (MSE), Govt. of Maharashtra is the Chairman and Director, MSME-DI, Mumbai is a Member Secretary of the State Level Advisory Board. There are forty other members representing different Central & State Government Departments/Organizations including leading Industry Associations on the Board.

### **Special Assistance:**

For the special future aspects of SSI, the Development Commissioner (MSME), Ministry of MSME, Govt. of India programmed some Projects with Special assistance.

The Special assistance includes :

#### **I. Financial Assistance to set up Intellectual Property Facilitation Centre at National Chemical laboratory, (IPFACE) Pune.**

IPFACE aims to promote awareness and adoption of Intellectual Property Rights amongst entrepreneurs and MSMEs in the State of Maharashtra. IPFACE has been offering its services so as to protect Intellectual Property i.e Patent, Trade Mark, Copy Rights, Industrial Design, Geographical Indication, etc. IPFACE since its start has been offering its services for patent drafting and filing prior art search and Patentability assessment and also support for patent filing in other countries and

#### **II. Support for entrepreneurial and managerial development of SMEs through incubators**

For the development of SSI in the State, there are subsequent host institutions identified by Ministry of MSME, Govt. of India for providing Research & Development infrastructure to the entrepreneurs.

- Zonal Technology Management (ZEM) & Business and Development (BPD) units,
- Central Institute for Research on Cotton Technology (CIRCOT), Matunga, Mumbai.
- DKTE, Rajwada, Ichalkaranji.
- Sant Gajanan Maharaj Engineering Centre, Shegaon, MITCON Agriculture College Compound, Pune.
- MITCON, Agriculture College Compound, Pune.
- National Chemical Laboratory, Pune.

This institute is provided research and development activities and managerial development through this institute.

### **8. Conclusion Remarks:**

Small Scale industry is one important factor in Indian Economy. For the development of the economy start up and SSI is important. Due to only SSI many entrepreneurs converted into large scale industrialist. There are so many factors which is the major challenge before us. For the overcome of above challenges some important remedies is suggested. Technical as well as financial support is very important.

### **References :**

1. Annual Report (2016): "Ministry of small-scale Industries and Agro & Rural Industries", Government of India, New Delhi.
2. lack of capital (2017): "A common reason a small business fails", Journal of Commerce and Management, Gujrat.
3. Vasant Desai,(1997): "Small scale industries and entrepreneurship", Himalaya publication House, Nagpur, PP-246.
4. Vasant Desai (1999): "Issues, problems and perspectives", Himalaya publication House, Mumbai 1999 PP-63.
5. MSMEs-DI (2016): "Annual census report", MSME, Mumbai.

### **Webography**

- <http://www.worldbank.org/en/topic/financialsector/brief/smes-finance>
- <http://www.banknetindia.com/banking/ssi2.htm>
- <http://www.msmedimumbai.gov.in/annual-report-2014-page-no18-22>
- [www.CensusofIndia2016.com](http://www.CensusofIndia2016.com)

# The Psychological Impact of IoT at Work

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## 1. Introduction:

The Internet of Things (“IoT”) is an inevitable reality in today’s workplaces. Thanks to the immense availability of mobile connectivity along with improved speeds and bandwidth, more and more items are gaining Internet capabilities that were unimaginable just a few years ago.

Inevitable thought IoT is, it is also ambiguous. What impact will this transformative new reality have on large enterprises and their workforces? What challenges will be introduced by an even more diverse, ever-changing assortment of Internet-ready devices that may be compromised?

It may be years before the full picture becomes clear, but companies must begin to adapt their policies, procedures, and corporate cultures right away. IoT will represent a sea change in both the technological landscape and the psychology of the workplace, offering both risks and rewards.

## 2. IoT Can Create a More Impersonal Workplace:

IoT has the potential to generate immense value in allowing teams to collaborate across very long distances. In fact, many enterprises are achieving significant operational savings leveraging the new world of mobile connectivity to reduce their office footprint in favor of “virtual teams.” These teams may be distributed globally and might never work face-to-face.

The scholarship behind contributing to and managing such a team is not new, but best practices are only just coming into focus. When team collaboration is mediated through software and long distances, it can be more difficult to understand the nuance behind communication and identify another’s intentions – potentially leading to disruptive misunderstandings.

## 3. Greater Autonomy For Knowledge Workers :

On the plus side, work is transitioning from “a place where you go” to “a set of activities.” This may ultimately result in greater autonomy for knowledge workers whose contributions may allow them to orbit the “workplace” without necessarily spending a conventional 9-to-5 day there.

Whether this creates a sense of independence or alienation may ultimately depend on whether legal protections continue to endure for professionals who find more and more of their daily contributions being made from an off-site location.

## 4. The Workplace Grows into a Dreaded Panopticon:

As mobile connectivity exploded, more and more people found themselves tethered to work on a 24-hour basis through their phones. “Always on” devices have led to an “always on” workplace where many people report discomfort with the idea of not checking their work email at night or over the weekend. This reduces morale and makes off-time less restorative.

## 5. Psychological Control:

The Internet of Things has the unique capability to extend this psychological control far further into the workplace. Of course, whenever employees are in the office, they must act professionally. However, IoT provides immense capacity to track individual movements throughout the workday, data that – while potentially useful – can reduce autonomy and create a sense of constant observation.

In exchange, this data provides new ways for enterprises to exercise granular control over the resources invested in their physical space. For example, sensors can adjust lighting, temperature, and other internal conditions according to usage – driving down operational costs and waste.

## 6. Reward: Greater Safety and Security:

Especially in environments like manufacturing and resource extraction, the Internet of Things has potential to mitigate risks that were once believed to be intractable. Safety systems that formerly consisted of a lattice of individual sensors, many of them with separate but interrelated functions, can now be fully integrated into a true network.

## 7. Conclusion:

IoT allows systems to capture risk data, inform the relevant parties before danger arises, and extrapolate based on performance in one area where risks are more likely to arise in other areas. This will free individual contributors from constantly being concerned about safety while giving safety experts the opportunity to focus on high-level operations.

## References:

1. The Wiley-Blackwell Handbook of the Psychology of Coaching and Mentoring Edited by Jonathan Passmore, David B. Peterson and Teresa Freire
2. The Wiley-Blackwell Handbook of the Psychology of Leadership, Change and Organizational Development Edited by H. Skipton Leonard, Rachel Lewis, Arthur M. Freedman and Jonathan Passmore
3. The Wiley Blackwell Handbook of Psychology of Training, Personal Development and E-Learning Edited by Kurt Kraiger, Jonathan Passmore, Nuno Rebelo dos Santos and Sigmar Malvezzi
4. The Wiley-Blackwell Handbook of the Psychology of Occupational Safety and Workplace Health Edited by Sharon Clarke, Tahira M. Probst, Frank W. Guldenmund and Jonathan Passmore
5. Humayun Zafar, Mobile Computing and Hand-Held Devices at Work, The Wiley Blackwell Handbook of the Psychology of the Internet at Work, 10.1002/9781119256151, (195-210), (2017).
6. Humayun Zafar, Mobile Computing and Hand-Held Devices at Work, The Wiley Blackwell Handbook of the Psychology of the Internet at Work, 10.1002/9781119256151, (195-210), (2017).
7. Wiley Online Library
8. Steven D. Charlier, Gary W. Giumetti, Cody J. Reeves, Lindsey M. Greco, Workplace Cyberdeviance, The Wiley Blackwell Handbook of the Psychology of the Internet at Work, 10.1002/9781119256151, (131-156), (2017).
9. Nico W. Van Yperen, Burkhard Wörtler, Blended Working, The Wiley Blackwell Handbook of the Psychology of the Internet at Work, 10.1002/9781119256151, (157-174), (2017).
10. Steven D. Charlier, Gary W. Giumetti, Cody J. Reeves, Lindsey M. Greco, Workplace Cyberdeviance, The Wiley Blackwell Handbook of the Psychology of the Internet at Work, 10.1002/9781119256151, (131-156), (2017).
11. Nico W. Van Yperen, Burkhard Wörtler, Blended Working, The Wiley Blackwell Handbook of the Psychology of the Internet at Work, 10.1002/9781119256151, (157-174), (2017).

# UDYOG AADHAAR : Simple Doing Business

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## **Abstract:**

*Industry Registration is any essential to live the economic process of the country. Udyog Aadhaar registration may be a easily approach system during this system had flourish on entrepreneurship life in India albeit which one among consist on our strength that on consist for our weakness during this fact absolute true, because this aim of country develop for industrialism for that on what impact, that impact on non-entrepreneurial awareness people has on begin the business on future on no quite on industrial field. This paper is especially specialize in understanding the concepts of Udyog Aadhaar in India.*

## **1. Introduction:**

Registration of industries is one among the main initiatives which help to record the expansion and performance of the industries over a period of your time. This process is common to all or any quite industries which comes under the preview of the central and government. MSME registration is additionally are of the main part this process. MSME registration is required for micro, small or medium sized enterprises in order that they will enjoy the advantages and incentives provided to small micro or medium sized enterprises by the govt. they're provided under the MSMED ACT. SSI registration is for little scale industries and units. Legal Wiz. In is a web platform that helps you in registration of MSME and SSI online. And procure an MSME and SSI certificate for an equivalent. Legal Wiz. In provides affordable, quick and reliable MSME and SSI registration service online and guarantee highest quality standard backed by 100% customer satisfaction. It also provide a full spectrum of post registration services associated with Trademark Registration, Copyright Registration, Accounting and Bookkeeping Services, Personalized legal instrument Drafting, etc. (SSI/MSME Registration).

## **2. What is Udyog Aadhaar?**

The Ministry of MSME has found out the infrastructure the Udyog Aadhaar (UA) Portal for online filing of Udyog Aadhaar Memorandum (UAM) by enterprises located anywhere within the country. The UA portal is additionally accessible on mobile devices. Small and medium small industries want to start out any business; they have to try to the registration with MSME. This registration with MSME are often wiped out two ways i.e. This facility is named Udyog Aadhaar. This Aadhaar may be a 12 digit number. The rationale to launch this Aadhaar is to supply maximum benefits to the tiny and medium scale industries, who are registered with MSME through this Aadhaar number. Registration Process:

1. To try to the registration within the small and medium scale industry owner has got to fill one form which he can do online also as offline.
2. If an individual wants to try to registration for quite one industry then also he/she can do individual registration.
3. To try to the registration he/she has got to fill one form which is out there at website.
4. The document required for the registration is personal Aadhaar number, Industry name, address, checking account details and a few common information.
5. During this the person can provide self-certified certificates.
6. There's no registration fees required for this process.
7. Once the small print filled and upload you'd be getting the license number.

### 3. List of Advantages:

1. During this to try to the registration you'll apply either online or offline. It means to try to registration there are two options available to you.
2. Once the business man has applied he/she will get the Udyog Aadhaar number on his registered post ID.
3. To use just one page form is required and it should be self-attested.
4. There's no process fees.
5. Once you've got registered with MSME you'd be getting all government scheme benefits like without guarantee loan, easy loan, loan with low rate of interest.
6. You'd be getting the support to participate in foreign expo.
7. Your industry would be getting the govt subsidies

### 4. Udyog Aadhaar: Simple Doing Business:

The Central Government has come – up Udyog Aadhaar Memorandum, a singular number issued to Micro, Small and medium Enterprises (MSMEs). This move will simplify registration procedure for entrepreneurs and promote simple doing business. The entire process of registration are often done online. There's no fee and no restriction on filling quite one memorandum using an equivalent Aadhaar number.

### 5. Key Features of Udyog Aadhaar Scheme:

1. The small print of the enterprises are often captured in a simple and convenient manner through Udyog Aadhaar Form.
2. NSIC KVIC Coir Board and other state level agencies handling MSMEs can assist entrepreneurs in registering and linking scheme benefits.
3. With the support of Udyog Aadhaar Registration, enterprises can pursue material of varied government schemes and smear online about numerous services obtainable by various Departments and Subdivision.
4. Udyog Aadhaar allows all enterprises to effortlessly file and resister themselves and admission other facilities too. Many entrepreneurs have already started using this type to urge them registered. Udyog Aadhaar may be a self-declaration form which will allow an enterprise to register itself with the govt authorities and 'self-certify' its existence. By filling the Udyog Aadhaar form, an enterprise can give all information By filling the Udyog Aadhaar form, an enterprise can give all information such as:-

1. Checking account details,
2. Promoter's/owner's Aadhaar number
3. Sort of the organisation (Proprietary, Partnership, Co-operative, etc.) and other minor details.

On submission of the shape to District Industrial Centres (DIC), the MSME are often issued:-

1. Udyog Aadhaar number
2. Permanent Account Number (PAN)
3. Assessment Number (TAN) and
4. Employee provident Fund Organisation (EPFO) registration.

Udyog Aadhaar registration is an excellent time chance for an Indian entrepreneurs, because this method has been straightforwardly can do the registering, no paper less work, and no cost of registration, and which one among business couples has been here on our range in register for Udyog Aadhaar, during this memorandum has been given on main object for reducing poverty and growth on Indian country has been developed for industrialism. Now a days on entire world on developing country on Indian has been emerged on entrepreneurial activity, because the entrepreneur has on locomotion on developing on socio economic development in order that national growth reason on big contribute for an entrepreneur in order that the way to keeping on entrepreneurial stability and at an equivalent time getting to improve on our innovativeness system and our progress on for that recording byzantine has diminish for that motive on mechanically cumulative the commercial level of India.

Table No. 1

Udyog Aadhaar All India Register of Micro, Small, & Medium enterprise 2015.

No.	State/UT	Udyog Aadhaar Regd.	Micro	Small	Medium	% of Udyog Aadhaar Regd.
1	ANDHRA PRADESH	13272	8361	4768	143	1.61
2	ARUNACHAL PRADESH	79	48	29	2	0.01
3	ASSAM	71	36	25	10	0.01
4	BIHAR	216340	212912	3303	125	2.29
5	CHHATTISGARH	6060	4396	1616	48	0.74

6	GOA	987	639	321	27	0.12
7	GUJARAT	79689	61795	17206	688	9.69
8	GUJARAT	79689	61795	17206	688	9.69
9	HARYANA	8337	5264	2895	178	1.01
10	HIMACHAL PRADESH	1567	1141	398	28	0.19
11	HIMACHAL PRADESH	1567	1141	398	28	0.19
12	JAMMU AND KASHMIR	834	726	103	5	0.10
13	JHARKHAND	34099	33123	937	39	4.14
14	KARNATAKA	21040	16267	4557	216	2.56
15	KERALA	15416	13151	2194	71	1.87
16	MADHYA PRADESH	45402	41124	4134	144	5.52
17	MAHARASHTRA	75040	56814	17455	771	9.12
18	MANIPUR	2873	2357	508	8	0.35
19	MEGHALAYA	8	6	1	1	0.00
20	MIZORAM	2	2	0	0	0.00
21	NAGALAND	46	29	17	0	0.01
22	ODISHA	12755	10644	2036	75	1.55
23	PUNJAB	8876	6032	2734	110	1.08
24	RAJASTHAN	47209	40333	6612	264	5.74
25	SIKKIM	64	52	12	0	0.01
26	TAMIL NADU	81124	69484	11370	270	9.86
27	TELANGANA	27828	16820	10808	200	3.38
28	TRIPURA	877	802	73	2	0.11
29	UTTAR PRADESH	82602	76702	5683	217	10.04
30	UTTARAKHAND	2659	1962	634	63	0.32
31	WEST BENGAL	23888	21587	2213	88	2.90
32	ANDAMAN AND NICOBAR ISLANDS	693	567	117	9	0.08
33	CHANDIGARH	455	348	103	4	0.06
34	DADAR AND NAGAR HAVELI	321	136	174	11	0.04
35	DAMAN AND DIU	262	96	156	10	0.03
36	DELHI	11615	8615	2931	69	1.41
37	LAKSHADWEEP	12	11	1	0	0.05
38	PUDUCHERRY	425	326	96	3	0.05
	Total	822827	712708	106220	3899	100

As per the above table, there are 8,22,827 units were registered with UA as on September, 2015 of which 7,12,708 belongs to Micro industries, 1,06,220 belongs to Small industries and three,899 belongs to Medium industries.

## 6. Conclusion:

India has been increasing level of employment and industries particularly step by tread on growth on country. the agricultural area has been growth on automatically growth trend percentage has been increase on Indian socio-economic development. Udyog Aadhaar registration is an envoy mile stone in India, during this registration has been implement on 2006 for recommended on Kamath Committee. Udyog Aadhaar aim is first on easily filling on registration and in India has been concluded on 80 percentage of country given on coordinate on India in order that Udyog Aadhaar biggest challenge or life time achievement on the way to improve on Indian country, for that on Udyog Aadhaar is introduce on no cost on offline filling on all Indian citizen can promote on industry on he or she is here on our range in register on Udyog Aadhaar memorandum under MSME. This text is especially to know the conceptual background of the Udyog Aadhaar and its features with reference to registration of industries in India. there's a requirement of making awareness about the Udyog Aadhaar among the micro and little entrepreneurs to avail the incentives and assistance provided by the govt.

## References:

1. www. [http// Udyog Aadhaar Gov. in](http://Udyog Aadhaar Gov. in)
2. Udyog Aadhaar Booklet
3. [www. support@legalwiz.in](http://www.support@legalwiz.in) login/register
4. www. MSME helpline mobile app.

# RURAL DEVELOPMENT PROGRAMMES IN BHARAT

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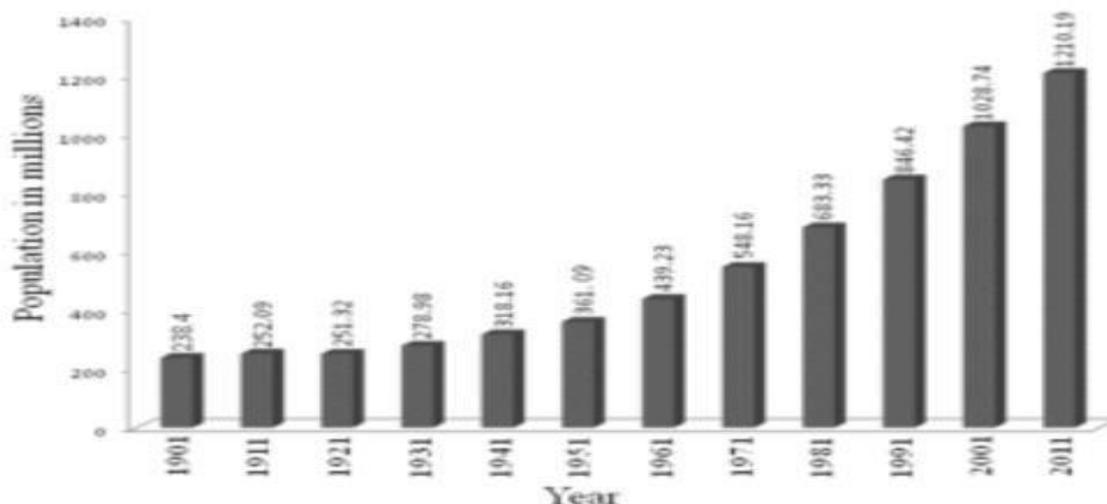
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## Abstract:

The agricultural development typically refers to the method of raising the standard of life and economic well-being of individuals living in comparatively isolated and sparsely inhabited areas. Gandhi National Rural Employment Guarantee Act (MGNREGA) is taken into account as a “Silver Bullet” for eradicating rural economic condition and state, by manner of generating demand for productive labour force in villages. It provides another supply of living which is able to have an impression on reducing migration, proscribing child labour, assuaging economic condition, and creating villages independent through productive assets creation cherish road construction, improvement of water tanks, soil and conservation work, etc. that it's been considered because the largest anti-poverty programme within the world. During this paper, supported the secondary information, an attempt has been created to comprehensively perceive the event effort to build the agricultural life and livelihood on the idea of varied secondary information.

## 1. INTRODUCTION:

In India, out of total population of 121 crores, 83.3 crores board rural areas (Census of India, 2011). Thus, nearly seventy per cent of the India's population lives in rural areas. These rural populations may be defined by mass poverty, low levels of skill and financial gain, high level of state, and poor nutrition and health standing. So as to tackle these specific problems, variety of rural development programmes square measure being enforced to form opportunities for improvement of the standard of life of these rural folks.



The term “rural development” is that the overall development of rural areas to enhance the quality of lifetime of rural folks. And it's a process resulting in property improvement in the quality of lifetime of rural folks particularly the poor (Ramesh, 2012). The agricultural organic process programmes shall cut back the economic condition and unemployment, to enhance the health and educational standing and to satisfy the fundamental wants such as food, shelter and wear of the agricultural population. to enhance the conditions of rural people, Government of Bharat launched some schemes through the design commission of India cherish Gandhi National Rural Employment Guarantee Act (MGNREGA), Rastriya Sama Vikas Yojana (RSVY), Indira Awas Yojana (IAY), Sampoorna Grameen Rozgar Yojana (SGRY), Integrated social group Development Project (ITDP), Pradhan Mantri Gram Sadak Yojana (PMGSY), Integrated Child Development Services (ICDS), Development of girls and youngsters in Rural Areas (DWCRA), etc.

of these schemes square measure aimed to scale back the gap between rural and urban folks which might facilitate cut back imbalances and speed up the event process.

## 2. MGNREGA: THE HISTORICAL PERSPECTIVE:

In the post-Independence amount, the Government wished to uplift the socio-economic condition (SEC) of their those that mainly depended upon forest merchandise and daily labour. Another necessary part of the governmental perspective was to settle the rural population as agriculture population.

### The Employment Guarantee Act, 2005:

Employment Guarantee Act, 2005, guarantees 100 days of employment during a yr to any rural ménage whose adult members square measure willing to try to unskilled manual work. The Act has inherited force with impact from Feb, 2006 in two hundred districts at the start and presently, it was extended to any or all the agricultural districts of Bharat from the yr 2008-09.

MGNREGA has come back once virtually 56 years of expertise of different rural employment programmes, that embodies each Centrally Sponsored Schemes and people launched by State Governments. These comprise the National Rural Employment Programme (NREP) 1980-89; rural landless Employment Guarantee Programme (RLEGP) 1983-89; Jawahar Rojgar Yojana (JRY) 1989-1990; Employment Assurance theme (EAS) 1993-99. Jawahar Gram Samridhi Yojana (JGSY) 1999-2002; Sampoorna Grameen Rojgar Yojana (SGRY) 2001; National Food for Work Programme (NFFWP) 2004. Among these programmes, the SGRY and NFFWP have been integrated with NREGA in 2005.

The Act was enforced in phased manner – a hundred thirty districts were added in 2007–08. With its contact 625 districts across the country, the flagship program of the UPA Government has the potential to extend the purchasing power of rural poor, cut back distress migration and to form helpful assets in rural India. Also, it will foster social and gender equality as twenty three per cent employees below the scheme square measure regular Castes, seventeen per cent Scheduled Tribes and 50% girls. In 2010–11, 41 million households were employed on NREGA worksites. This Act was introduced with Associate in nursing aim of raising the purchasing power of the agricultural folks, primarily semi or unskilled work to folks living in rural India, whether or not or not they're below the poverty line.

## 3. THE PRESENT STUDY:

In the gift review paper, we reviewed the Gandhi National Rural Employment Guarantee Act (MGNREGA) in detail with the assistance of secondary information. The data was collected between Gregorian calendar month 2013 to July 2013 from Vidyasagar University library, rural development section and social group welfare department of Paschim (west) Medinipur district administration. 2 case studies square measure also cited supported first-hand field work. The present study intends to assess the general scenario i.e., the professionals and cons associated with the theme with the subsequent objectives:

- i. To assess and acquire new insights on development of MGNREGA yet as overall socio-economic impact of various rural development programmes on the lives of the agricultural folks.
- ii. To document the advance or changes brought by MGNREGA within the lives of the rural poor at the unit level and village level.

## 4. MGNREGA:

The current standing number of authors have tried to study the MGNREGA well and its connected problems. Dreze (2007) appearance at the corruption in rural employment programmes in Orissa (India) and the way this has continued in an exceedingly NREGA as well. Mathur (2007), a system of regular and continuous flow of authoritative information is crucial, as opposition the random reports and studies enthusiastic about the initiative of people and teams. To improve implementation, the govt. must solve issues, modify policy directives, and issue operational tips for the district, block and village levels. The govt. should take the lead, be proactive, mobilize establishments and groups, and use the media effectively.

NREGS involves many of state officials, council functionaries, elected representatives, NGOs and community teams. They play a essential role however had very little preparation for the challenge. NREGS of course is a program of national importance that has been marginalized. Whereas the Ministry of Rural Development is that the nodal ministry at the centre, each relevant department and agency requires being concerned.

Ambasta et al. (2008) gave variety of important recommendations. These enclosed deployment of regular professionals dedicated to MGNREGA in any respect levels, particularly at the block level. Intensive effort at increase a massive cadre of totally trained grass-root workers is needed at the gram council level through a nationwide movement for capacity building, participating government and non-government coaching establishments.

Mehrotra (2008), a official World Health Organization has worked in implementation of the theme, believes that four per cent of programme prices allocated as body prices and professional support remains quite low and will not recognize the very fact that a programme at the scale of MGNREGA needs serious professional support.

Khera (2008) thinks that the prospering implementation of the MGNREGA within the Pati block in Orissa (India) state goes on the far side the ability of its residents to say their rights. This is brought out by the high levels of engagement with the programme in terms of planning, implementation and observance. Mathur (2009) states that in social audit undertaken in state (India), it was found that in sure villages, some folks stated that they'd not been purchased the work done.

The MGNREGA must be a support system for the urgently poor and will enable, encourage and empower them to square on their own feet. In its gift format, the MGNREGA might become yet one more grant programme that runs the chance of turning into a burden on the state (The Economic Times, 2009).

Rural development is that they want of the hour. It not solely constitutes the event of rural regions however conjointly aims at up the well-being and quality of life to the agricultural poor through collective method. it's clear from the review that though' this programme is supposed for improving the life conditions of the folks in the rural settings however this programme suffers from variety of shortcomings. Thus, the detailed review of literature clearly indicates that there's a requirement for intensive anthropological analysis work for understanding the socio-economic impact of MGNREGA programme on rural Indian.

## 5. OBSERVATIONS FROM THE SECTOR:

The following case studies area unit cited based on first-hand field work conducted at Kurinjipadi village of Cuddalore district in Tamilnadu, Asian nation and Dodiya village of Rajnandgaon district in Chhatisgarh, India.

**Case 1:** Name: Jayalakshmi Age: forty five she lives in Therkuthittai council of Melbhuvanagiri Block in Cuddalore District in Tamil Nadu. She could be a widow and encompasses a son who studies within the XIIth normal. She says that agricultural work is on the market just for concerning 6 months in an exceedingly year which too not continuously. a number of the work like harvest home paddy is finished by couples (husband and spouse together) and she or he isn't ready to opt for such work since she could be a widow. She but is able to work underneath NREGA. She has worked for thirty days in 2007-2008 and has used the income she attained to support her son's education. She is happy that NREGA wages are paid hebdomadally and would really like to induce a card for her son so he can also work.

**Case 2:** Name: Mogra Age: thirty four She lives in Dodiya village of Dhamansara Panchayat, Rajnandgaon Block. She has BPL card and her family accustomed keep in an exceedingly kacca house. Recently she and her husband designed a brick house for them. She came to grasp concerning the provisions underneath the NREGA through a public announcement within the village. She decided to figure underneath NREGA. Last year she and her husband worked underneath NREGA for 100 days and attained an honest quantity of cash at the speed of Rs. 60/- per day. because the little amount of land they need is enough to satisfy their basic food wants. Finally, they decided to pay cash attained by NREGA to build a pacca house for them.

Thus, it's clear from the cited cases that MGNREGA could be a important rural development programme in Asian nation because it helps the rural poor to earn their resource. This programme will go into protracted thanks to improve the socio-economic standing of the agricultural poor.

## 6. CONCLUSION:

Around seventy per cent of the Indian population resides in rural areas. People in rural areas ought to have same QOL as is enjoyed by folks living in sub-urban and urban areas. What is more, the cascading effects of financial condition, state, poor and inadequate infrastructure in rural areas on urban centers is resulting in socio-economic tensions manifesting in economic deprivation and urban financial condition. Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) is considered as a "Silver Bullet" for eradicating rural financial condition and state, by way of generating demand for productive labour force in Indian villages. It provides an alternate source of resource which is able to have an impression on reducing migration, proscribing kid labor, alleviating financial condition, and creating villages self-sustaining through productive assets creation such as construction, improvement from water tanks, soil and conservation work, etc.

For which it's been thought of because the largest anti-poverty programme within the world. Since the theme goes to be in situ for associate degree indefinable amount of your time, and is being enlarged in terms of scope and geographical coverage, there is a unit several challenges like non-homogeneity in its effectiveness, region specific disparities and outcomes etc. It is exactly thanks to this reason; few NGOs have already done some surveys. However, they are very much confined to 1 or 2 districts, and more significantly targeted on general defects, rather than inquiring the impact of

## REFERENCES:

1. Ambasta, P., Shankar, P.S.V., & Shah, M. (2008). Two years of MGNREGA: The road ahead. *Economic and Political Weekly*, February 2008.
2. Arup, M. 2013. Effect of land acquisition and displacement on education: An anthropological study. *International Journal of Research in Sociology and Social Anthropology* 1 (1): 45-56.
3. Dey, S., & Bedi, A. (2010). The National Rural Employment Guarantee Scheme in Birbhum. *Economic and Political Weekly*, XLV (41), 19-25.
4. Dreze J. (2007). MGNREGA: Dismantling the contractor raj. *The Hindu*, 20th November, 2007. Khera, R. (2008). Empowerment Guarantee Act. *Economic and Political Weekly*, August 2008.
5. Mathur L. (2007). Employment guarantee: Progress so far. *Economic and Political Weekly*, December 2007.
6. Mathur, L. (2009). Silent but successful initiative. *The Hindu*, 1st March, 2009.
7. Mehrotra, S. (2008). NREG two years on: Where do we go from here? *Economic and Political Weekly*, August 2008.
8. Roy, D. S., & Samanta, D. (2010). Good Governance and Employment Generation through NREGA: A case study of Gram Panchayat in West Bengal. Presented at Conference on "Infrastructure, Finance and Governance: Push for Growth, Organized by Ministry of Rural Development, GOI.
9. Shah, M. (2004). National Rural Employment Guarantee Act: A Historic opportunity. *Economic and Political Weekly*, XXX (39), 5287-5291.

# TAX POLICY IN INDIA

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## **Abstract :**

*Goods and repair Tax (GST) may be a destination base tax collected by central also as government to satisfy the public expenditure as a neighborhood of important mechanism of fiscal system of a nation. During a GST regime it's anticipated that the tax base are going to be comprehensive, as virtually all goods and services are going to be taxable, with minimum exemptions. GST are going to be a game changing reform for Indian economy by developing a standard Indian market and reducing the cascading effect of tax on the value of products and services (Kumar, 2014). No cross utilization of credit would be permitted.*

## **1. INTRODUCTION:**

Given the passage of the Constitution (122nd) Amendment Bill, 2014 for Goods and Services Tax(GST) within the Lok Sabha on 6th May, 2015, the Government of India seems committed to exchange all the different quite indirect taxes levied on goods and services by the Centre and States which is proposed to be implement by 1st April, 2016 (Budget Speech 2015 by Mr. Arun Jaitley, Former minister of finance, Government of India). Goods and repair Tax is a destination based tax collected during a multi-point of production, sales and rendering of services at uniform manner with a facility of claiming an input decrease on output tax. It's basically a tax on final consumption.

The taxes which are getting too subsumed by the GST at Central level are:

- 1) Central Excise Duty;
- 2) Additional Excise Duties;
- 3) The excise Duty levied under the Medicinal and Toiletries Preparation Act;
- 4) Service Tax;
- 5) Additional Customs Duty);
- 6) Special Additional Duty of Customs;
- 7) Surcharges; and

## **2. LITERATURE REVIEW:**

The first journey of GST (in some countries it is referred to as Value Added Tax) was started in France in the year 1950 AD. Presently near about 160 countries are having the GST as a neighborhood of their tax collection. Across the globe a good range useful Added Taxes are applicable with a highest rate of 40% in Gambia; 21% in Argentina and Belgium; 20% in Bulgaria, Austria, United Kingdom and Albania; 19.25% in Cameroon; Angola and Australia at 10%; Singapore 7%; and lowest rate of fifty is pertinent in Canada, Japan, Niue and Nigeria. Although, initially the Government of India proposes three rates namely 20% for goods, 16% for services 10% for essential items but it's yet to begin with a hard and fast and specific rate of GST to be levy and picked up.

Studied "Basic Concepts and Features of excellent and repair Tax in India", and found that GST is that the most rational steps towards the comprehensive tax reform in India since independence. GST will create one, unified Indian market to form the economy stronger. Implementation of GST will increase the tax compliance among the tax payers as everyone in the value chain who gets input decrease has an incentive to make sure that the previous persons has paid the tax. As an entire tax administration are going to be easier for the government. Where both the Centre and the States are assigned the powers to levy and collect taxes through appropriate legislation. It's been proposed that there would be a "Dual GST "model in India, taxes are going to be levied by both Centre (Central GST) and state (State GST) on Goods and Services. Hence, a dual GST would be consistent with the Constitutional requirement of fiscal federalism. Studied "GST in India: A Big Leap within the Indirect Taxation System", and found that the positive impacts are hooked in to a neutral and rational design of the GST, balancing the conflicting interests of varied stakeholders, GST would be an enormous rise in the indirect taxation system and also provides a new impetus to India's economic change.

Many study like has been done which are basically stranded on understanding of concept of GST, and criticizing the prevailing taxation system in India. But none of the study fund which are within the ground of the explanation and understanding of mechanism of levy and collection of GST between Centre and state. Hence this study has been undertaken by the researcher to explore the solution of the subsequent research question. What would be the mechanism of levy and collection of GST between Centre and state? What's the rationality of implementing the GST in India? What is the opportunities and challenges of GST?

### 3. Objectives:

To address the above mentioned research questions this study has undertaken to achieve the following objectives:

- To understand the rationality behind the movement towards GST model.
- To review the gathering mechanism tax under GST regime.
- To understand the opportunities and challenges of GST implementation.

### 4. METHODOLOGY:

Methodology is meant keeping in pace with the objectives set and to deal with the research problem. It also tries to ascertain the opportunities and mechanism of GST & its probable impact. This study is centered on secondary information and fact collected from books, journals, magazines, newspaper and websites. The study is conceptual in nature and it is supported more by facts than by numerical data. A pictorial demonstration has been used for lucid understanding about the mechanism of collection and sharing of GST between center and states and how the input credit is claimed. The study is further limited to the discussion of the chances of implementation of Goods and repair Tax in India for the



Source : <https://www.quora.com/How-will-the-goods-and-services-tax-GST-work-...>

#### (a) Recompenses of present legal system on implementation of GST in India:

Implementation of GST will result in better compliance as everyone within the value chain who gets input decrease has an incentive to make sure that the previous person has paid tax. The opposite benefit is that the differentiation between goods and services is removed, and decrease is out there across this distinction.

1. Reduction in prices: thanks to full and seamless credit, manufacturers or traders don't have to include taxes as a neighborhood of their cost of production, which may be a very big reason to say that we will see a discount in prices.
2. Increase in Government Revenues: This might seem to be a touch vague. However, even at the time of introduction of VAT, the public revenues actually went up rather than falling because many of us resorted to paying taxes rather than evading an equivalent. However, the government might need to introduce GST at a Revenue Neutral Rate, during which case the revenues won't see a big increase in the short run. However, within the end of the day it will increase thanks to high compliance and less avoidance. This will be done through lower rate by increase Tax base and reducing exemptions.
3. Less compliance and procedural cost: Instead of maintaining big records, returns and reporting under various different statutes will find comfortable under GST as the compliance cost are going to be reduced. Hence tax payers are not any longer required to keep record of CGST, SGST and IGST separately.
4. Move towards a Unified GST: Internationally, the GST is usually preferred during a unified form (One single GST for the entire nation, instead of the twin GST format). Although India is adopting Dual GST looking into the federal structure, it's still an honest move towards a Unified GST which is regarded as the best method of Indirect Taxes.
5. GST may be a transparent Tax and also reduce numbers of indirect taxes. With GST implemented a business premises can show the tax applied within the sales invoice. Customer will know exactly what proportion tax they are paying on the merchandise they bought or services they consumed.
6. This in turn will help Export being more competitive.
7. This will benefit people as prices will come down which in turn will help company's octroi, central nuisance tax, state nuisance tax, entry tax, license fees, turnover tax etc. will no longer be present and everyone these are going to be brought under the GST. Doing Business now are going to be easier and easier as various hidden taxation won't be present.

## **(b) What are the challenges towards implementation of GST?**

### **Although the GST will remove the various**

Shortcomings of present legal system. However, for the successful implementation of an equivalent, we must be cautious a few aspects. State governments believe GST will reduce revenues. GST may only include 100 items in its purview; e-commerce might not be a part of it.

It is really required that each one the states implement the GST together which too at an equivalent rates. Otherwise, it'll be really cumbersome for businesses to suits the provisions of the law. For smooth functioning, it's important that the GST clearly sets out the taxable event.

However, the rules should be more refined and free from ambiguity. However, this new GST move would have the same drawbacks of existing legal system because parliament would have power to form laws that override any law made by state legislatures.

The GST may be a destination based tax, not the origin one. In such circumstances, it should be clearly identifiable on where the products are going. This shall be difficult just in case of services, because it's tough to identify where a service is provided, thus this should be properly addressed. More awareness about GST and its advantages need to be made, and professionals like us really need to take the onus to assume this responsibility.

## **5. CONCLUSION:**

GST is that the most rational steps towards the comprehensive tax reform in our country since independence. GST is live able on all supply of goods and provision of services also combination thereof at a special stage of production, distribution of goods and rendering of services. GST will create one, unified Indian tax market subsuming all forms of prevailing taxes at the present except alcohol, tobacco and petroleum products to form the economy stronger. Experts are argued that GST is probably going to enhance tax collections and boost India's economic development by breaking tax barriers between States and integrating India through a consistent rate. Within the new tax regime i.e. in GST structure in every steps of production/ distribution input tax credit are going to be allowed against the output liabilities. Any business transaction within a specific state shall be liable to pay SGST to state and IGST to center. However, interstate transactions are subject to IGST only which is like SGST plus CGST.

## **REFERENCES:**

1. Bhiwandikar, M. (2013). Goods and Service Tax. *Tactful Management Research Journal*, 110-113.
2. Ezeoha, A. E., & Ogamba, E. (2010). Corporate Tax Shield or Fraud? Insight from Nigeria. *International Journal of Law and Management*, 52(1), 5-20.
3. Kumar, N. (2014). Goods and Service Tax in India: A Way Forward. *Global Journal of Multidisciplinary Studies*, 3(6), 216-225.
4. Lin, S. (2008). China's Value Added Tax Reform, Capital Accumulation, and Welfare Implications. *China Economic Review*, 19(2), 197-214.
5. Onji, K. (2009). The Response of Firms to Eligibility threshold's from the Japanese Value Added Tax. *Journal of Public Economics*, 93(5-6), 766-775.
6. Palil, M. R., & Ibrahim, M. A. (2012). The Impacts of Goods and Service Tax (GST) on Moddle Income Earners in Malaysia. *World Review of Business Research*, 1(3), 192-206.
7. Sanusi, S., Omar, N., & Sanusi, Z. M. (2015). Goods and Service Tax (GST) Governance in Malayasian New Tax Environment. *Procedia Economics and Finance*, 31, 373-379.
8. Garg, G. (2014). Basic Concepts and Features of Good and Service Tax In India. *International Journal of scientific research and management*, 2(2), 542-549.
9. Government of India. (2009). First Discussion Paper of Goods and Service Tax in India. The Empowered Committee of State Finance Ministers.
10. Kumar, N. (2014). Goods and Service Tax in India: A Way Forward. *Global Journal of Multidisciplinary Studies*, 3(6), 216-225.

# Women Empowerment : Gender Equality And Share of Women In Economic Participation And Opportunity.

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## 1. INTRODUCTION:

Gender impartiality will be achieved merely when women and men benefit from the similar opportunities, human rights and obligations in all spheres of existence. This means sharing equally, power and innocence, and having equal opportunities in economic and social spheres. Equal claim on education and career prospects will enable women to realize their personal ambitions. Gender equality demands the empowerment of women, with a focal point on identifying and redressing authority imbalances and charitable women additional independence to administer their possess life. When women are empowered, the whole family beneath, thus begetting the society as a whole and these beneath often have a ripple effect on future generations.

According to Census-2011, India has reached the population of 1210 million, as against 301 million in 1951, of which 58, 64, 69,174 (48.5 %) were females. The population of India accounted for 17.5% of the total world population and occupied second place. The sex ratio was 930 in 1971 and it has increased to 940 according to 2011 Census. The female literacy also increased from 18.3% in 1961 to 74.0% in 2011 and a decrease in male-female literacy gap from 26.6% in 1981 to 16.7 per cent in 2011. Women empowerment in India is heavily dependent on many different variables that include geographical location (rural/urban), educational status, social status (caste and class) and age. The scope and coverage of the schemes launched has been expanding that include initiatives for economic and social empowerment of women and for securing gender equality. The following schemes at present are aiming at women empowerment and gender equality in India:

1. Integrated Child Development Services (ICDS) (1975)
2. Rajiv Gandhi Scheme for Empowerment of Adolescent Girls (RGSEAG) (2010)
3. The Rajiv Gandhi National Crèche Scheme for Children of Working Mothers.
4. Integrated Child Protection Scheme (ICPS) (2009-10)
5. Support to Training and Employment Programme for Women (STEP)
6. Dhanalakshmi (2008)
7. Short Stay Homes
8. Swadhar
9. Ujjawala (2007)
10. Scheme for Gender Budgeting (XI Plan)
11. National Mission for Empowerment of Women
12. Rashtriya Mahila Kosh (1993) : 3 :

In spite of the effective implementation of all the above schemes and programmes, there are significant gaps between policy achievements and actual practice at the community level. The Global Gender Gap Index (2016) observed that India is simply not doing enough for its women. The ranking of the country has fallen from 105 (out of 135 countries) in 2012 to 87 out of 144 countries in 2016.

### 1.1 Objectives of the Present Study:

This research paper has the following objectives:

1. To understand the level of equality among girls and boys in primary, secondary and higher education.
2. To know the Gender Equality and Share of women in economic participation and opportunity
3. To Identify the Gender Equality and Women accessibility to resources
4. To examine the Gender Equality and Women Empowerment in Political Field.

## 2. RESEARCH METHODOLOGY:

For the purpose of the present study data has been collected from secondary sources. It is collected from Journals, Magazines, including the reports and documents of Ministry of Human Resource Development, Government of India National family health survey report, etc. and various other publications.

### 3. FINDINGS:

Gender Equality in primary, secondary education, tertiary education Education is the single most important factor to ensure gender equality and empowerment. Enrolment of girls in primary education, survival and transition to higher levels of education lead to achieving gender parity in education. During 2010-11 to 2014-15, substantial progress has been achieved towards gender parity in education as revealed by some important indicators.

#### D) Gender Parity Index (GPI)

Thus GPI (based on GER) which is free from the effects of the population structure of the appropriate age group, provides picture of gender equality in education. During 2010-11 to 2014-15, substantial progress has been achieved towards gender parity in education as revealed in the following table.

Year	Primary education	Secondary education	Higher education
2010-11	1.01	0.88	0.86
2011-12	1.01	0.93	0.88
2012-13	1.02	0.96	0.89
2013-14	1.03	1.0	0.92
2014-15	1.03	1.01	0.92

Source: Ministry of Human Resource Development, Government of India website

It can be noticed from the above table; in primary education the enrolment is favorable to females as GPI has crossed the level of 1.

In Secondary and higher education levels also a rapid progress has been observed during the recent past towards gender parity.

Gender equality is a human right which entitles all persons irrespective of their gender to live with dignity and with freedom. Gender equality is also a precondition for all round development and reducing poverty. Empowered women make invaluable contribution to the improvement of health conditions and educational status and productivity of whole families and communities, which in turn improve prospects for the next generation. The Millennium Development Goal also puts emphasis on gender equality and empowerment of women. It is now widely accepted that gender equality and women's empowerment are fundamental cornerstones for achieving development results. Keeping the status of women empowerment and its determinants in India, in this paper an attempt is made to present some of the key determinants of inequalities that exist in our country so as to have an idea about to what extent the women are empowered.

#### ii) Level wise enrollment of girls

Indicator	Level of education	2010-11	2014-15
Enrolment of girls as percentage of total enrolment	Primary education (Classes I to V )	47	48
	Upper education ( Class VI to VIII)	47	59
	Secondary (IX to X) and higher secondary (XI to XII) education	44	47
Number of girls per 100 boys enrolled	Primary education (Class I -	92	93
	Upper primary education	89	95
	Secondary education	82	90
	Senior secondary education (XI to XII)	79	89
	Higher education	77	84

Source: Educational Statistics at a glance 2014, M/o HR

The literacy rate in terms of number of girls per 100 boys enrolled shows that during study period from 2010-11 to 2014-15; a remarkable progress has been identified at all levels of education. It can be said that 8 to 10% growth is recorded in upper primary, secondary and higher education during the study period.

#### Gender Equality and Share of Women in economic participation and opportunity:

Women's participation in labor force is seen as a signal of declining discrimination and increasing empowerment of women. It is thought that feminization of the workforce is also a sign of improvement of women's opportunities and position in society. Share of Women in Employment measures the degree to which labor markets are open to women in

industry and service sectors, which affects not only equal employment opportunity for women but also economic efficiency through flexibility in the labor market and reflect economic factors in social empowerment of women.

Year	Labor force participation rate	Share of regular wage and salaried workers
2010-11	42.0	8.2
2011-12	42.7	8.4
2012-13	32.6	10.2
2013-14	31.2	12.8
2014-15	31.1	12.1

Source: National family Health Survey -4

The labor force participation rate of women is low and a sizable gender gap persists. Moreover, when women work they tend to end up in marginal jobs. One of the most intense debates in recent years has centered on the declining labor force participation rate of women in India, which dropped from 42.7 percent to 31.1 percent during 2010-11 to 2014-15. In the share of regular wage and salaried workers, female share is increased from 8.4% to 12.1 percent during study period.

#### 4. MOBILITY AND DECISION MAKING:

Other than educational and economic empowerment, changes in women's mobility and social interaction, participation in decision making are also necessary. As per the estimates of NSS 68th Round (2011 – 2012), the proportion of female headed household in rural and urban areas were 11.5% and 12.4% respectively. Still today a very small percentage of Indian women have the freedom in household decision making, visiting their family and relatives and going outside home. Besides, in most of the Indian communities women do not have the right to decide how many children they will have. Moreover, a woman does not have the freedom to spend her spouse's earnings and even her own earnings as per her choice and need.

#### Gender equality and Women Empowerment in social and political fields:

Greater participation of women in social and political sphere is essential to make the social and political institutions more representative. It serves as a tool for empowerment of women and contributes to gender sensitive decision making. As far as political participation is concerned, women have a poor representation in Indians Lok Sabha (Lower House), Rajya Sabha (Upper House) and also in State Assemblies. A total of 62 females have been elected in the General Election 2014 constituting only 11.4% share in the Lok Sabha, while in the Rajya Sabha only 11.9% representatives are women at present. Similarly, women representation in the state assemblies and state councils is also very poor. On an average, in the states, women share is only 8% in assemblies and only 4% in state councils as on 1st August 2014. However, due to the reservation of one-third seats for women in all tiers of the Panchayati Raj Institutions (PRIs), representation of women in the PRIs has increased to 46.7% as on 1st March 2013. As far as women's participation in the judiciary is concerned, there were only 2 women judges out of 30 judges in the Supreme Court and only 58 women judges out of 609 judges in different High Courts with maximum 25% in Delhi High Court and no women judge in 6 High Courts as on 1st April 2014 (Women and Men in India, 2014).

#### Gender Equality and Women Access to Resources:

Access to resources is important for economic freedom of women as freedom of movement is linked with their economic independence and also infuses with power and expands agency. The National Family Health Survey-3 has identified some important variables namely: knowledge of loan programme, get loan, having bank account, higher educational attainment and working outside as a measure of economic independence.

#### 5. ISSUES TO BE TACKLED FOR WOMEN EMPOWERMENT AND GENDER EQUALITY:

The above discussion shows that in India women are discriminated and marginalized at every level of the society whether it is social participation, economic opportunity and economic participation, political participation, access to education or access to resources etc. Majority of Women in India are poor, uneducated and insufficiently trained. They often end up in the daily struggle of managing an ill equipped family and are not in a position to propel out themselves of the oppressive and regressive socio-economic conditions. Although lots of things are happening and large amount of resources are being spent in the name of women empowerment in India, the actual situation however, just remains the same and in many instances worsens further. Deep-rooted systemic challenges still remain to be addressed. The following are some of the important issues to be tackled for women's empowerment and gender equality in India.

- Eliminating gender differences in access to education and educational attainment are key elements on the path to attaining gender equality and reducing the disempowerment of women. Education, particularly higher education of

women, is a key enabler of demographic change, family welfare, and better health and nutrition of women and their families. Special measures should be taken to create a gender-sensitive educational system, increase enrollment and retention rates of girls and improve the quality of education to facilitate life-long learning as well as development of occupation/ vocation/ technical skills by women.

- Child marriage, which is still prevalent in our society, must be stopped. This is because an early age at marriage of women is an indicator of the low status of women in society and also curtails women's access to education.
- A woman needs to be physically healthy so that she is able to take challenges of equality. Women must have access to comprehensive, affordable and quality health care.
- The programmes for training women in agriculture and other allied occupations should be expanded to benefit women workers in the agriculture sector.
- Employment, particularly for cash and in the formal sector, can empower women by providing financial independence. Women should be provided with proper wages and work at par with men so as to elevate their status in the society.
- Violence against women must be eradicated from the society. Apart from strict laws and legislations, the violence against women can only be tackled through a change in attitude that needs to take place in the family, in the society and the female members of the society as well. Gender sensitization and gender training programmes are also important.
- Women's political participation has been considered a major measure of women's empowerment. Women's representation in the legislature is very poor in India. Hence, necessary measures should be taken to increase women's representation in Lok Sabha, Rajya Sabha, State Assemblies and State Councils.
- Moreover, women's empowerment cannot take place unless women come together and decide to self-empower themselves. Women should come together as a unifying force and initiate self empowering actions at the ground level.

## 6. CONCLUSION :

As women constitute almost one-half of India's population, without their engagement and empowerment, rapid economic progress is out of the question. For economic growth to be really inclusive, women empowerment is of utmost value. It is crucial for achieving sustainable economic development of our country and even beyond. Still a large part of women does not have sufficient autonomy regarding the value choices for their own life. The data also revealed that there is a necessity to look beyond economic resources or material prosperity and into cultural and social influences, which are playing a significant role in shaping the women's autonomy and empowerment. Along with government, civil society organizations and all other stake holders must come forward and involve in the women empowerment process is the need of the hour.

## REFERENCES:

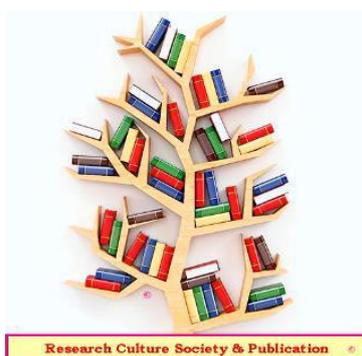
1. Dr. Manoj Varghese, Sourabh Guha, Anuraag Agarwal (2016), Scenario of women empowerment in 2016: Its role in Indian economy and Business, International Journal Of Recent Trends In Engineering & Research , Volume 02, Issue 11
2. Neha Elizabeth (2015) "Empowering Women through Education with special reference to Indian economy." International Journal of Research in Management & Technology Vol. 5, No.1
3. Muktazur Rahman Kazi (2015) "Status of Women in India in the Context of Inclusive Growth." IOSR Journal Of Humanities And Social Science (IOSR-JHSS) Volume 20.
4. Dr. B. Nagaraja (2013) Empowerment of Women in India: A Critical Analysis, IOSR Journal Of Humanities And Social Science, Volume 9, Issue 2
5. Wilson, P. (1996) Empowerment: community economic development from the inside out. Urban Studies,33(4-5), 617-630.
6. Malhotra Anju, Sidney Ruth Schuler and Carol B'oader (2002) measuring women's empowerment as a variable in International Development, World Bank Social Development Group.
7. Government of India , Human Development Report (2016).
8. Sunita Kishor & Kamla Gupta (2009) Gender equality & Women empowerment in India.
9. Government of India National family health survey (4), Ministry of health and family welfare, New Delhi.

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