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ABOUT US

Aditya Institute of Management Studies and Research (AIMSR) is amongst the leading B-schools in India and ranked amongst the top 10 B-schools in Mumbai according to the Times B-School Survey, 2019. This Institute has created a unique identity for itself by challenging conventional thinking under the guidance of Shri. Harishchandra S. Mishra, Chairman & Founder Trustee - AIMSRS. The Institute has been accredited with ISO Certification 9001:2015 by the TUV Certification Body of Rheinland, Germany for providing professional education in the field of management studies. The AICTE approved PGDM program and the Mumbai University affiliated MMS program are both known for their excellence in building leadership skills in more than 400 students each year.

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To impart quality education that encourages students to be competent enough for best-fit job roles. To provide faculty members with facilities to research, experiment and implement contemporary learning tools.

From the Director's Desk

Dear Reader,

Welcome to the Volume 7 Issue 1 of our Journal “Shodhadiya”.

The journal has always focused on research and provided a platform to publish good quality research paper based on empirical and scholarly research.

This issue is based on the theme of the 8th annual International Research Conference, “Transforming Business-The SMART Way”. It is apparent to everyone that the world of business today is facing the extent and pace of disruption not witnessed in any previous era. It has become virtually impingent upon everyone business to remain nimble and sharp-footed if it has to have any hope of sustained survival. Within the context of workforce composition, many believe that recruiting from a diverse pool of candidates means a more qualified workforce. A diverse and inclusive workforce helps businesses avoid employee turnover costs. Diversity fosters a more creative and innovative workforce and is clearly necessary to create a competitive economy in a globalized world. This year’s conference has been envisaged to cover all these vital aspects of the business world critical to sustained growth of any business.

In this issue, we have published a few selected papers from the Research Conference. Our sincere thanks to all the contributors for their support and interest.

We once again request all academicians, industry experts and researcher to send their unpublished article/ papers for publication in the next issue of our Journal.

Warm Regards,

Dr. Sunita Srivastava

Director

AIMSR

From the Editor's Desk

Dear Reader,

Warm welcome to the Volume 7, Issue I of “Shodhaditya “, peer reviewed, bi-annual Journal of AIMSRS.

Volume 7, Issue I edition of Shodhaditya presents its view on various disciplines of management which includes operations, finance, human resource, marketing etc. The research papers and articles published in this edition are authored by eminent professors of various Business Institutes and Universities from the country.

This issue contains papers from the International Research Conference on “Transforming Business – The SMART Way” held in AIMSRS, 2019 which give a new intuition in the field of Research and will immensely benefit the readers. The papers were called all over the country and it is revived by renowned academicians of the management industry.

The Journal provides platform for researchers, academicians and industry expert to publish their valuable research work. Since inception the journal is continuously publishing original and best quality research work.

We thank our Research team who have contributed and provided valuable insights during the whole journey of Shodhaditya.

Happy Reading!

We look forward to your views and valuable contributions!

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Aditya Institute of Management Studies & Research

Aditya Educational Campus, R. M. Bhattad Road, Ram Nagar,
Borivalli (West), Mumbai - 400092 | Tel: 022 - 6110 6111/6110 6112

E-mail: research.aimsrs@gmail.com | research@aimsrs.edu.in

Web: www.aimsrs.edu.in

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*A Study on Pradhan Mantri Suraksha Bima Yojana –
A Success Story With Reference To Mumbai*

Dr. Neha Goel

Head, Department of Economics

Nirmala Memorial Foundation College of Commerce and Science

Email ID: nehauditgoel@yahoo.com

Abstract:

It was mentioned in the Budget Speech for 2015-2016, that a large proportion of India's population is without Insurance of any kind that is health, accidental or life. Further as the young population of India's age, it is also going to be pension and insurance less. Therefore Government has decided to work towards creating a universal social security system for all Indians, specially the poor and unprivileged to address longevity risks among worker in the unorganized sector and to encourage workers in the unorganized sector, to voluntarily save for their retirement. Such workers constitute 88% of the total labour-force of 47.29 crores according to the 66th round of NSSD survey 2011-2012.

Keywords Pradhan Mantri Suraksha Bima Yojana, Insurance , Labour Force

Introduction:

Financial inclusion is an important priority of the Govt. The objective of financial inclusion is to extent financial services to the large hitherto unserved population of the country to unlock its growth potential. To extend the reach of banking to those outside the formal banking system, various limitations are taken by the Govt. of India and RBI from time to time. PSB's opened 7,840 branches in 2013-2014 as compared to 4,432 in 2012-2013. They had a total of 96,853 Automated Teller Machine (ATM) by January 2014 as compared to 69,652 at the end of 2012-2013. Boxes 5.2 and 5.3 highlight some of the key developments in this field.

Financial Inclusion

Despite of earlier initiatives, RBI did not reach the expected level of inclusions. Thus to ensure greater financial inclusion it took support from various SHG's and NGO's and requested them to act as intermediar-

ies through use of "Business Facilitator" and "Business Correspondent Model".

Thus, the present study is an effort to empirically assess the efficiency of using the financial inclusion as a predictor (Independent Variable) of Pradhan Mantri Yojana (Dependent Variable) among the citizens of India.

REVIEW OF STUDY

According to "Paramasivan Chelliah":-

Financial inclusion is the recent concept which helps to achieve sustainable development of India through available financial resources to the

Priyal and V.G "Overview of Financial Inclusion in India" July 2013. Times Of India P-10.

Paramasivan Chelliah, "Overview of Financial Inclusion", Volume No.2, (2013) Issue No.3 (March) 2013.

unreached people with the help of financial institutions. Financial inclusion can be defined as "easy access to formal financial services or system and thus usage by all members of the economy. In an address **Dr.K.C. Chakrabarty Deputy Governor, RBI, the National Finance Enclave 2010**, has mentioned that financial inclusion is no longer a policy choice but it is policy compulsion today and banking is a Key-Driver for inclusive growth.

According To Joseph Massey (2010) :- Joseph Massey said that role of financial institutions in a developing country is vital in promoting financial inclusion. The effort of the Govt. promotes financial inclusion and deepening can be further enhanced by the pro-activeness on the part of capital market players including financial institutions. Financial institutions have a very crucial and wider role to play in fostering financial inclusion.

According To "Mandira Sharma – 2":-

Mandira Sharma and Jesuis (2008) suggest that the issue of financial inclusion is a development policy priority in many countries, using the index of financial inclusion Joseph Massey (2010)

➤ “International Journal Of Management & Development” Page 65-66.

➤ Mandira Sharma-IJMDISSN-2320-0685. Volume 2, 3rd May, Page 50-55.

develops in levels of human development and financial inclusion in a country move closely with each other, although a few exceptions exists.

Objectives Of The Study

The main objectives are as follows:

- a. To understand the concept of financial inclusion.
- b. To get a clear understanding of Pradhan Mantri Suraksha Bima Yojana.
- c. To list out the negative implications of Pradhan Mantri Suraksha Bima Yojana.
- d. To create awareness of this Yojana among students of Mumbai.

RESEACRH METHODOLOGY

1.Target Population: The target population includes the resident of the poor and weaker sections of the Mumbai.

2.Sample Frame: The random sample frame consisting of total 500 (Five Hundred) residents.

3.Sample Size: The sample size of the project is around 500 persons.

4.Sample Method: The sample method include concluding a survey with residents either through personal interaction or through telephonic interaction, convenience sampling technique was adopted.

5.Data Collection: Primary and Secondary data.

6.Assessment Indicators: Chi- square $\{\pi 3\}$ method is used.

Demographic Profile of Mumbai

As the 4th most popular city in the world and one of the popular urban regions in the world, Mumbai has a metro population of about 20.7 million in 2016.

Mumbai’s urban population is estimated to be over 22

million and the density populated city is one of the largest in India in terms of population, trade, activity and business. The metropolitan area has experienced an explosion in growth over the past 20 years a common occurrence with metropolitan areas in India.

The population of Mumbai has more than doubled since 1991, when the census showed that there were 9.9 million people living in the area.

The percentage of population living in slums is estimated to be high as 41.03% in Greater-Mumbai. The number of people residing slum throughout the entire country is estimated to increase 9% to hit 104 million by the year 2017. Dharavi is the largest slum in Mumbai and the second largest in Asia. It is estimated that one million people lives in Dharavi which has a population density of 600 to 2,000 people for area and space across 535 acres.

There are approximately 5,000 businessmen and 11,500 single room facilities. The slum is the most literate in the country, with a literacy rate 69%. Because land is at such a premium resident of Mumbai frequently live in cheap, cramped housing, far from work leading to long commuters on the city’s busy mass transit system.

Cultural diversity within the city means that these are mixed religious throughout the area. Religions of Mumbai are broken down as follows, Hindus (67.39%), Muslims (18.56%), Buddhist (5.22%), Jain (3.99%), Christian (4.20%), Sikh (0.58%), Paris and Jews account for the rest.

Interpretation of Data

Among the primary data collected reveals that more people have little knowledge and little awareness about the given facilities of Prime Minister Suraksha Bima Yojana, Pradhan Mantri Jeevan Jyoti Bima Yojana and Atal Pension Yojana.

Out of 500 respondents, 200 people were having good knowledge about all these facilities under social security scheme, 255 were having either medium knowledge or do not know about these facilities.

Out of the 500 respondents, 300 were not having good knowledge about Life Insurance Corporation and 100 people do not know anything about the program and

policies of Life Insurance Corporation.

Hypothesis Testing-

In the above study, we have applied Chi- square $\{\pi^2$ Test $\}$ at 95% level of significance and 5% error.

Null Hypothesis- people are not aware about Prime Minister Suraksha Bima Yojana, Prime Minister Jeevan Jyoti Bima Yojana and Atal Pension Yojana.

Alternative- People are aware about these social security facilities mentioned above.

	People Are Aware	People Are Not Aware	Total
Having Bank Account	200	255	455
Do Not Have Bank Account	25	20	45
Total	225	275	500

204.75	250.25	455
20.25	24.75	45
225	275	500

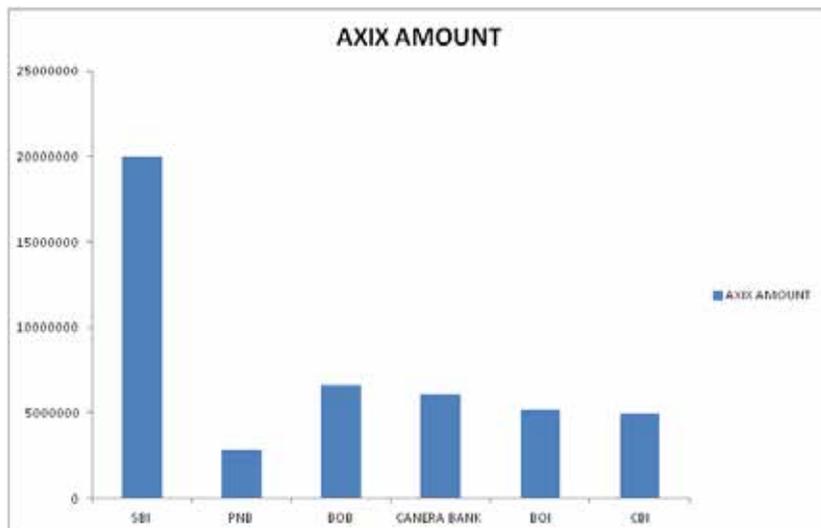
Rough Work:- $225 \times 455 / 500 = 204.75$

Solution:-

Observed Value (O)	Expected Value (E)	Observed Value-Expected Value (O-E)	(O-E) ²	(O-E) ² /E
200	204.75	-4.75	22.56	0.11
25	20.25	+4.75	22.56	0.126
255	250.25	4.75	22.56	0.090
20	24.75	-4.75	22.56	0.011
500	500	0		$X^2 = 1.237$

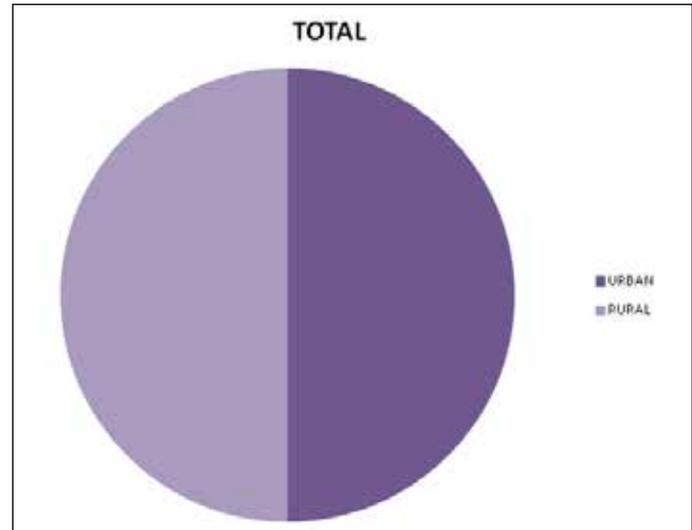
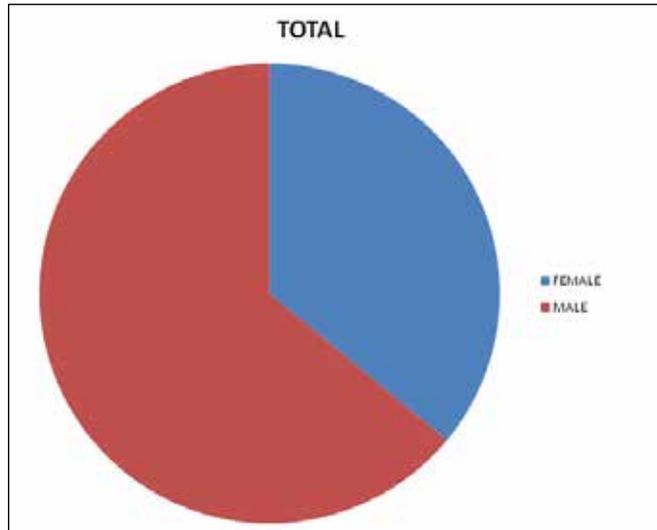
Thus the Chi- square $\{\pi^2\}$ is 1.237. The P value is zero. The result is significant at PC 0.05. We will accept the alternate hypothesis. It means respondents are less aware about the Prime Minister Suraksha Bima Yojana.

Analysis and Interpretation – People’s Enrollment Details In Mumbai.



Summary of APY/PMJJBY/PMSBY as on 22.06.2015

Scheme Name	Rural Male	Rural Female	Urban Male	Urban Female	Grand Total
APY	68,340	41,572	1,13,518	71,768	2,95,198
PMJJY	86,61,286	48,79,799	79,79,647	4,57,238	2,60,98,970
PMSBY	2,44,53,356	1,38,36,461	2,51,52,876	1,37,85,704	7,72,28,377
Total	3,31,82,982	1,87,57,832	3,32,46,021	1,84,35,710	10,36,22,545



1. The scheme has more benefits for the peoples basically for the poor and youngsters.
2. The Govt. banks have played a major role for the success of these schemes.
3. Both urban rural people are equally obtaining these schemes are almost 50% less than males.
4. Comparatively, than male female enrollment into these schemes are almost 50% less than males.
5. Govt. is spending approximately 12,520 Crores for 5 years towards **PMJJBY, PMSBY & APY**.

LIMITATIONS OF PRIME MINISTER SURAKSHA BIMA YOJANA

- i. Currently, it is almost impossible for poor people to buy any kind of insurance policy due to unaffordable premiums.
- ii. Large number of poor persons does not have a bank account because of shortage of money.
- iii. Although, Govt. has tried to open the accounts

of the people in bank at **zero balance** with the help of Jan-Dhan Yojana. People have opened the account with a view that Govt. will deposit money in their accounts. It is a Myth.

- iv. Although, India is developing rapidly in all sphere. However, there is a certain section of the society which is still living under poor conditions and this section of people is not covered under any social security such as population either lives in villages or slums or mainly work in unorganized sectors in small industries.

Suggestions

1. The Govt. banks has to take still more steps in reaching these schemes for all the women.
2. The Govt. bank has to maintain still more transparency in informing how the money collected from these schemes will be utilized by the Government/Banks.
3. People from all the sector has to come up voluntarily to uplift these schemes.

Conclusion

From the above study it can be said that the beginning to provide social security benefits to large no. of un-organized people is really good. The subscribers for these schemes were at increasing pace. However, if implemented still more property and the benefits is passed on to the real subscribes. It will go a long way in establishing a social security system to the large section of society which has remained uncovered.

Finding and Recommendation

Through survey following things have been found out:-

Under PMSBY scheme lots of account have been opened but 60% account are only in continuation till day. Rests of 40% are running without keeping the balance or lied Ideal. Now we have to create the awareness about the living account and minimum balance must always be kept in account. So they may be able to get the benefit of PMSBY and PMJJY.

Out of the 500 responds only 25 persons was not opened the account. Majority of the people open bank account in order to save some money i.e. 370.

The respondent who tried to open bank account but re-fused by bank was asked them to open bank account with minimum of Rs. 500 which is not possible for the most of the poor person. Now RBI has issued a notice that commercial banks will have to open the account even as zero balance.

It is a Rs. 2 Lakh personal accident cover for an annual premium of just Rs. 2, which is affordable for poor persons. It is available for all banks account holders between the age group 18-70 years. It also offers permanent disability cover which does not offer any other Insurance company including L.I.C of India.

Even if an accident does not result in death but cause permanent disability, resulting irrecoverable loss of use of both eyes or hands or feet an amount of Rs. 2 Lakh is paid which is a very important feature of this plan.

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A study on SMART cities

Revati Kulkarni

Learner, SYBAF.

Thakur College of Science and Commerce, Kandivali (East), Mumbai

Email ID: revati.kulkarni13@gmail.com.

Dr. Nishikant Jha.

BAF Coordinator, Thakur College and Commerce

Thakur College of Science and Commerce, Kandivali (East), Mumbai

Email ID: nishisir2001@gmail.com.

ABSTRACT:

This paper involves the Role of Iot (Internet of Things) in Smart cities and how it can contribute to the Smart cities. A descriptive study was done by conducting the survey and collecting the responses consisting of both male and female. In today's world it has become indispensable to develop cities due to augmenting population. With the implementation of Smart City Mission by the Government it has lead to many benefits for the present and future generations. In this paper we have studied its benefits as well as the challenges we might face with the use of IoT. Iot has become a prodigious advantage for the people since it collects data which helps the government to understand the demand pattern and helps them to create a two way network with the citizens. It helps the cities to curtail certain problems like traffic congestion, pollution, uncleanliness etc. Today, technology is playing a very extensive role in development of Smart cities in all aspects.

Keywords: IoT (Internet of things), Augmenting population, Smart city mission, Two way network.

INTRODUCTION:

A Smart city refers to an urban area that incorporates information and communication technologies (ICT) and uses different type of Internet of things (IoT) sensors to enhance the quality and performance of urban services such as energy, transportation and utilities in order to reduce resource consumption, wastage and promoting sustainable development.

The rural population in India is declining over the years and migrating to urban areas. Since 1950, there has been a rise from 17.1% to 29.2% in urban areas. The speculation for the year 2050 suggests that the urban population will keep on increasing, hence making

it important for the Indian Government to take up the Smart City project.

Smart cities uses ICT which acts as a network between the Government and the citizens and helps to meet the demands of the citizens by analysing the demand pattern and thus addressing the resources online. IoT is a very big support for development of Smart cities. It helps to add flexibility, scalability, increases the efficiency and reduce the complexity as well. The main work of IoT is to collect data through its sensors and other devices and assist the cities to cut down pollution, improve the infrastructure, improve transportation etc.

Currently with the success of Smart City project, the central government is planning to introduce the Smart city Mission 2.0 in 2020. Some of the smart cities are Bhopal, Pune, Surat Kochi etc. After having the project done in 100 cities, now the government is planning to expand the project in 4000 other cities.

REVIEW OF LITERATURE:

1. Shoebshaik and Manishankar (A study on the usage of ICT for the Smart Cities Mission, 2017):

This article focuses on the difference between the cities without Smart city implementation and with its implementation and how ICT has played a cardinal role in its development. This article also examines every aspect of smart cities into consideration and also discusses the advantage of companies dealing in Iot-Transportation Sector.

2. Andrea Zanella and Lorenza Vangelista (Internet of Things for Smart cities, 2015):

This paper meets an attempt to present and discuss the technical solutions and best-practice guidelines adopted in the Padova Smart City project, a proof of concept de-

ployment of an IoT island in the city of Padova, Italy, performed in collaboration with the city municipality. Furthermore this paper hence provides a comprehensive survey of the enabling technologies, protocols and architecture for an urban IoT.

3. BadisHammi and RidaKhatoun (IoT Technologies for Smart Cities,2017): This paper focuses on the deployment of IoT in Smart City Projects. This paper also discusses about the risk and privacy issues witnessed along with the benefits ofIoT. Furthermore, it also discusses about the future and current trends of Smart cities and Iot.

AIMS AND OBJECTIVES:

1. To study the concept of Smart cities
2. To understand the elements of Smart cities.
3. To study how Iot helps in development of Smart Cities.
4. To study the challenges for IoT based in Smart City development.
5. To give out suggestions to improve the development of Smart cities

HYPOTHESIS:

H0: There will be a negative impact of IoT in Smart Cities

H1:There will be a positive impact of IoT in Smart Cities

RESEARCH METHDOLOGY:

Research Design: Descriptive

Sources: This paper contains both primary data and secondary data

Primary Data: Primary Data has been collected by doing an online survey

Secondary Data: Secondary Data has been collected through various websites

DATA INTERPRETATION:

Q1] Do you think that the Smart City Initiative taken by the government will create a huge impact?

YES	NO	MAYBE
54.5%	13.6%	31.8%

Q2] Do you think IoT has a positive or negative impact in development of Smart Cities?

POSITIVE IMPACT	NEGATIVE IMPACT
81.8%	18.2%

Q3] Which of the following is the most faced problem with the implementation of IoT?

HACK - ING	HIGH COST OF INFRA-STRUCTURAL DEVELOPMENT	LACK OF CONFIDENCE AND RELUCTANCE SHOWN BY CITIZENS
45.5%	31.8%	22.7%

Q4] Do you think that the implementation of Smart city project has lead to sustainability?

YES	NO	MAYBE
36.4%	13.6%	50%

Q5] Do you that that successful implementation of Smart City initiative has helped in economic development?

YES	NO
95.4%	4.6%

FINDINGS:

In total 30 respondents responded to the survey/ questionnaire.From that, 63.6% of the respondents were Male and 36.4% of the respondents were Female. Most of the respondents were of the age of 19, while the remaining ones were of the age of 17,18& 20.

1. 54.5% of the respondents think that the Smart City Initiative taken by the government will create a huge impact.
2. 81.8% of the respondents think that IoT has a positive impact in development of Smart Cities.
3. 45% of the respondents think that hacking is the most faced problem with the implementation of IoT whereas 31.8% of the respondents think that high cost of infrastructural development is the most faced problem with the implementation of IoT.
4. 36.4% respondents think that the implementation of Smart city project has lead to sustainability.
5. 95.4% of the respondents think that successful implementation of Smart City initiative will help in economic development.

TESTING OF HYPOTHESIS:

Since, most of the respondents believe that IoT can have a positive impact in Smart City Development, thus, our Hypothesis (H1) is accepted.

ELEMENTS OF SMART CITY AND ITS IMPACT IN IOT ERA:

1. Smart Infrastructure: Smart urban infrastructure include connected streets, smart lightings, smart parking and other transport innovations.

- Connected Streets: The connected streets play an important role in acquiring data from several devices, sending information about the traffic, roadworks and road blockages. Iot is the network which is used to connect to several devices and therefore plays a very significant role.
- Smart Parking Management: It is difficult to find a free parking space in a large city, hence Iot network and Smart parking system can be used to find vacant parking space. Vehicle detection sensors are used. Also, wireless sensors are implanted in the parking space which tells the duration and price of the parking spot. This would help to reduce congestion and decrease vehicle emissions and cut driver stress.

- Smart Lighting: Not only can smart street lighting reduce energy consumption, it can also add to the safety of citizens. Street lights could for example become brighter when movement is detected, so it becomes clear from a distance that traffic is approaching.

2. Smart Buildings & Properties:

- Safety and Security Systems: These include implementation of CCTV Cameras, Biometrics, wireless alarms which would reduce the unauthorised access in the buildings as well as any possible harm. With the help of Iot, it has now become possible to collect the information on smartphone and other devices too.
- Power Consumption: Smart buildings are capable of adjusting their power consumption to the real-time scarcity of electricity. If the power consumption is increased the energy grid can send a request to lower the consumption thus reducing the energy cost.
- Ventilation and Heating: Smart ventilation and heating systems monitor temperature, pressure humidity of the buildings. Wireless sensor network can access the data and ensure there is adequate heating and ventilation.

3. Smart Water Management:

- Leakage detection: Detection of water leakage is very important due to scarcity of Water and growing population. Thus IoT enables precise control over water resources data, thus allowing an efficient and optimized management of water companies
- Advance warning of floods: Iot plays a huge role in sending an advance warning of floods. When the sea level rises, the sensor models communicate over long distances and send out signals through user websites, via sms or email.
- Chemical Leakages in Water: Smart Water wireless sensors measure the water quality parameters and detect the potential risk. They connect to the Cloud for real time water control.

4. Smart Waste Management:

- Waste management is the most important aspect of Smart City. It is very important to look for sustainable way to manage and reduce the cities waste. IoT's impact on waste management is increasing day by day. The outdated method of collecting waste through bins is now being replaced with sensor detection bins and sophisticated waste management applications

Smart Industrial Environment:

- Air/Noise pollution:IoT helps in controlling toxic and harmful gases
- Explosive and Hazardous Gases: IoT helps in detecting gas and leakages in factories and other chemical industries.
- Detection of forest fires: It helps to detect any forest fires and monitoring of combustion gases
- Avalanche and Landslide Avoidance :It helps in monitoring the moisture of soil, density of the earth as well as any dangerous pattern in land conditions.

CHALLENGES FOR IOT-BASED IN SMART CITIES DEVELOPMENT:

1. **Security and Privacy issues** – One of the most common challenges faced in the Implementation IoT in Smart cities are the security and privacy issues. IoT collects private or sensitive data which can be exposed to people through hacking or data leakage. Large number of IoT are devices are often vulnerable to such attacks.
2. **Lack of interoperability** – Interoperability is needed to combine the data collected from devices. Lack of interoperability blocks the development of applications.
3. **Issues related to data quality and Scalability** – The accurateness and completeness of obtained data can differ. The quality of data received is influenced by many factors like process parameters and variables, Sensing equipments etc.
4. **Costing Issues** –The creation of networks of sensors, screens, cameras, smart devices, smart grid and a

secure information-sharing infrastructure requires significant investment and collaboration between parties, and the benefits may not always be divided equally.

5. Lack of reliability and robustness (system failures) - The reliability of systems has been reported as a problematic issue in designing smart houses. IoT needs a huge amount of location-based sensory data and should be robust enough to ensure its effectiveness.

SUGGESTIONS:

1. The Government should not be allowed to access all the private data and it should have some limitations on the data being accessed.
2. The citizens should have the Right to privacy and they should know for what purpose their information is being used.
3. The process of development of Smart cities should be more quick and reliable since its very time consuming.
4. Each individual should be made aware about it since they are going to implement the benefits of Smart Cities in their life.
5. Funding and developing infrastructure for IoT remain a challenge, so the governments must focus on allocating budgets for expansion of IoT infrastructure
6. Electric pumps should also be built so that electric cars will be introduced which in turn will reduce smoke emissions.

CONCLUSION:

The study conducted here finally conclude that IoT-plays a very big role in the development of Smart Cities. Smart city technology would make the cities operate more efficiently. About two third of cities have developed, making it easier for the citizens. With the increase in the rise of greenhouse gases, trash on the streets and in the ocean as well, smart cities fight back to reduce the negative effects thus contributing to-

wards sustainability. Not only this but there has also been rise in economic development of the country. Data analytics and Smart sensors have now proven to be a feasible solution to conserve natural resources. Not only this but now, there has been an improvement in the interaction between the citizens and the government, improvement in transportation and safer communities as well. With certain benefits, there are also certain drawbacks such as concern about data privacy

and security, a lot of funding and also it is very time consuming. However in conclusion, the end goal for Smart Cities is to bring sustainability without compromising the quality life of citizens through the use of IoT.

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Impact Investment India – An Economic and Social Implications

Shivali Thakar

Visiting faculty – Economics and Finance

Chetana H S College of Commerce & Economics, Bandra (East), Mumbai

Thakur Institute of Management and Research, Kandivali (West), Mumbai

shivalipandya86@gmail.com

ABSTRACT

Impact investment plays an essential role in any economy due to increasing uncertainties facing the world including climate change, unemployment and poverty, steep economic inequalities, lack of accessible water, basic education or healthcare, and the lack of absolute economic progress. Impact investment are those investments that create social and environmental impact and satisfied financial returns at the same time. Though impact investment is not new concept for India, but still the impact investment industry is at a nascent stage in India. The aim of the paper is to understand the impact investment as growth engine of India, market trends, sector level analysis, contribution of government and corporates and so. This paper presents a snapshot of growth of the impact investing industry in India in recent years, various impact investment instruments, role of Government, Corporates and individuals, and lastly the future of impact investment. The approach to the research is based on secondary data available online and offline.

KEY WORDS Impact Investment, Financial instruments, Social, Sustainable, Growth

INTRODUCTION

Impact investment worldwide has started gaining importance as a tool to improve millions of lives. It has been complementing mainstream investment from recent years. India is no far from targeting Impact investment sustained by varieties of investors, with a high level of impact, the potentiality of risk and return, and a wide range of strategies and portfolios. Impact investment for India is an approach to overcome challenges of poverty and inequality, unemployment, social and environmental issues, etc. Impact investment in India particularly as compared

to other nations, impact investors to provide capital for untested business models at early stages and across sectors and regions that are underpenetrated by other investors (for example, sanitation, water, and clean energy in rural communities). A successful case study of AMUL is treated as an impact investment wherein AMUL employed low-income dairy farmers to professionally manage a supply chain. (Sharon Buteau, 2016) Initially in India, Impact Investment was highly focused on sectors like education through investment in educational technology, small scale industries, agriculture. However, since the last decades, investments in clean energy (wind, solar, and small hydropower generation) dominated impact investing in India.

OBJECTIVE

The objective of the paper is to understand the concept of impact investment for sustainable growth in India in sync with the role and responsibilities of the government and investors. Apart from this, the paper will identify key challenges with respect to return on various impact investment instruments.

HYPOTHESES

The study is based on following hypotheses:

1. Impact Investment plays a crucial role in development of social and economic segment of the Economy
2. Impact investment is a responsibility of government through various schemes and initiatives

RESEARCH METHODOLOGY

The research study is descriptive in nature and based on secondary data. The data are collected from various reports on Impact Investment industry, Journals,

articles and Impact Investor Council portal.

SCOPE OF THE STUDY

The research paper covers only The Indian Impact investment industry and its implications on Society and Economy as a whole.

REVIEW OF LITERATURE

Several studies have been done with respect to Impact investment as a concept, and its pattern on various sectors of the economy. One of the study conducted by **Damian Payiatakis**, Head of Impact Investing, **Dr. Peter Brooks**, Head of Behavioral Finance of Barclays on “Investors Motivations for Impact: A Behavioral Examination, (2017) analysis the trend of increasing investor activities and behavioral pattern of investors with respect to market rate return. Another report published by Global Impact Investing Network (2018) On **Annual Impact Investor Survey 2018**, included the study of a five-year trends analysis of growth and changes in the industry, and also presented data on various aspects of impact investing market.

Jane Reisman, Veronica Olazabal (2016) in “Situating the Next Generation of Impact Measurement and Evaluation for Impact Investing” discusses the role of private sector as partner to public sector with innovative solutions in solving social issues. It even stated the difference of evaluation process of private and public sector which does not keep the record of progress but also witness the profits and returns

DISCUSSION AND ANALYSIS

A. Impact Investment – Critical evaluation

Impact investment plays a crucial role in supporting social and economic needs of society. It looks at raising funds and making an investment in start-ups who work to solve socio-economic challenges using the market economy. In India, there has been a rise in the number of social enterprises and growing interest in impact investment however there is a huge gap of understanding and awareness amongst investors and entrepreneurs (Ravi, 2019). Few of the Impact Investors are:

- High Net-worth Individuals and their family offices;

- Foundations and charities;
- Banks;
- Impact funds including pension funds, sovereign wealth, and social venture funds;
- CSR pooling vehicles and funding by companies;
- Angel investors;
- Funding platforms or exchanges

The Impact Investment consist of numerous stages. The investor, characterized by persons or institutions active in the economy, will deliver to the organization of Impact Investing – in addition to the donation of money – also entrepreneurial skills, typical of the profit. This entity will invest resources (financial and not financial) exclusively in projects and companies that have as their mission of social change. The commitment in Impact Investing operations will attract and encourage additional investors to join in these social impact investments.



Source: <http://www.ebanimpact.org/impact-investing/>

B. Instruments of Impact Investments

The major segment of impact investments in India are financial inclusion, health, clean energy, education, gender equality, and sanitation. Several of these sectors have seen companies flourish and attain large scale impact, with support from impact investors. There is a huge chunk of entrepreneurs who are trying to come up with credible measures for the impact generated instruments creating both the financial returns and social impact.

1. **Impact Bonds:** Impact Bonds are innovative financial instruments that pull private investment to finance high-impact social programs. They are a way for the public and private sector to partner with not-

for-profits to deliver social services. IBs are designed and implemented in early childhood education, global health, and labor force development, including recidivism and employment. Educate Girls”, an impact bond, launched in 2015 in the Bhilwara district of Rajasthan. The private investor, UBS Optimus Foundation, provided the upfront working capital to the service provider, Educate Girls. The aim was to increase enrolment numbers for out-of-school girls as well as their learning outcomes in literacy. The evaluation report of “Educate Girls” showed that it surpassed its targets. The investor recovered his initial funding along with a 15% return from the outcome payer. Impact bonds work in combination of payment – by-result contracting and public private partnership and impact investing.

2.Social Venture Funds: They are commonly known as impact funds as the fund manager is expected to analyze the social value created by the businesses. As per SEBI guidelines, a social venture capital fund needs to invest at least 75% of its assets in businesses which have a positive impact on society. This sets them apart from venture capital funds which mainly focus on risk and returns. These funds invest in early stage start-ups in space i.e. financial inclusion, affordable healthcare, clean energy, education and agriculture. They provide start-ups with seed investment, operational and technical support to set up the business and lay down the governance and compliance procedures. Generally, NGOs or socially conscious HNIs and UHNIs may be interested in investing in these funds. In the year 2012, SEBI enacted the Alternative Investment Funds (AIF) Regulations which included ‘social venture funds’. AIF Regulations is to regulate all forms of vehicles set up in India for pooling of finances. AIF is any fund incorporated in India in the form of trust or a company.

1.Responsible (or value-aligned) public equity investing: This refers to the decision made by individual and institutional investors to invest in mutual funds, exchange-traded funds, or individual stocks that have positive social or environmental impacts, such as environmental, social, and governance screens. For instance, divesting from stocks in chemical companies

and investing in renewable energy stocks.

2.Impact-oriented private equity: It is the instrument that involves investing in private (non–publicly traded) for-profit companies that have explicit social or environmental objectives. Private equity investments are treated as longer-term investments than public equity investments and provide the potential for deeper investor-investee relationships. For instance, investing in a microfinance institution that offers loans to social enterprises.

3.Public interest project finance: It includes funds for projects developed by local public, quasi-public, or nonprofit organizations, such as regional environmental protection groups, for example construction of public gardens and forest reserves.

C. Role of Government to promote Impact Investments For the impact investing industry in India to grow and develop, there is a need for government support in the form of tax and fiscal incentives. A report by Global Social Impact Investment Steering Group suggests that empowering a senior government official to act as a leading champion for impact investment, would help to formulate and implement applicable policies that build market infrastructure and to support the development of the sector . The “impact” in impact investment is very often tied to public sector policies that help direct private investments to social purpose.

Today mostly Impact Investment is place-based, most acutely at the local, state and local government must incentivize the investors. There are mainly three role played by the Indian government to promote and encourage impact investment: market regulator, market facilitator, and market participant. All three roles incentivize the development of the impact investing economy as a whole.

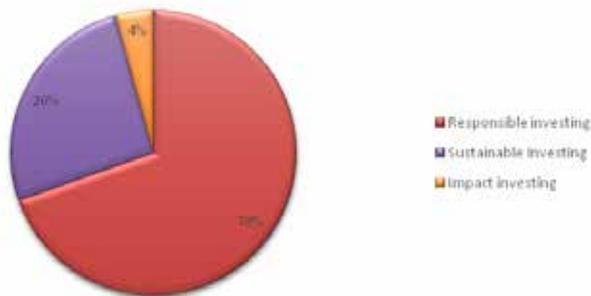
According to Global Steering Group for Impact Investment (GSG) “Government initiatives can range from specific educational programs, the creation of outcome funds, the establishment of specific legal form for impact businesses, the creation of a standardized impact rating system (Social Impact Investment Taskforce, 2014), to the promotion of

blended-finance vehicles and other impact investing financial instruments". (GSG Submit, 2017)

D. Future of Impact Investment

Going forward, the impact investment market in India is bound to expand given the unique combination of high-return and high-impact ideas. The impact investment industry holds great platform complemented by government policies and initiatives. These initiatives involves coordination and promotion at corporate and individual basis. On an average, internal rates of return is always on the higher side than market returns, even in sectors that are traditionally social sectors with low returns. Many impact investors differ from usual venture capital or private equity models and play more amalgamate roles — both as investors and mentors - helping their investees improve business models, go to market and leverage technologies. The Prominent social impact investment firms in India include Unitus Ventures (formerly Unitus Seed Fund), Aavishkaar Venture Management, Acumen, Accion International and LGT Venture Philanthropy.

Contribution in Impact Economy globally (In Trillion \$)



As per Mr. Amit Bhatia, global CEO of Global Steering Group (Amit Bhatia, 2018) Globally the impact economy is now \$23 trillion strong out of which \$16 trillion in responsible investing (investments which avoid destruction, e.g., environmental, social and governance investments), \$6 trillion in sustainable investing (investments which benefit all stakeholders, e.g., renewable energy), and \$0.25 trillion in impact investing (investments contribute to solutions,

e.g., affordable education, affordable healthcare or financial inclusion). As illustrated in fig:

The recent trend have shown that the most of the deals are in clean energy and agriculture than in healthcare and education. Shifting culture, growing capital markets are all changing the impact industry and hence creating more opportunities as awareness grows. There are three key to impact investment in India as far as future is concern: increasing awareness in the concept of impact investment, more strategic move by government and corporates and a growing entrepreneurship ecosystem.

CONCLUSION

As the industry will grow, there will be more shaping of business models, sector level infrastructure or policy reforms. The need of an hour is better management, more collaboration, regulatory changes and more capital are needed to encourage growth. Ideally, with scale, scope and focus, impact investing can go a long way in complementing the public sector in bringing about equitable, sustainable and efficient development, especially in the resource-starved healthcare, education and agriculture sectors in India. As per the hypothesis Impact Investment plays a crucial role in development of social and economic segment of the Economy and to create a road map for impact investment industry, government must adopt various schemes and policies.

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A Study of Impact of Artificial Intelligence In Financial Sector

Hemangi Sanjay Thakkar

Researcher

Thakur College of Science and Commerce, Mumbai

hemangithakkar79@gmail.com

Dr. Nishikant Jha

Assistant Professor

Thakur College of Science and Commerce, Mumbai

nishisir2001@gmail.com

ABSTRACT

As global technology has evolved over the years, we have moved from television to the internet, and today we are smoothly and gradually adapting Artificial Intelligence. The term AI was first coined by John McCarthy in 1956. It involves a lot of the main things ranging from process automation of robotics to the actual process of robotics. It has become highly popular among large enterprises today owing to the amount of data these companies are dealing in. Increase in the demand for understanding the data patterns has led to the growth in demand of AI. AI processes are much more efficient in identifying data patterns than humans which is beneficial for companies to understand their target audience and gain insight. Thousands of companies all around the world are looking at AI as the next big thing for the finance industry. This study on Artificial Intelligence is an attempt to know what general public thinks about AI and if they are comfortable for using AI in financial sectors in various forms. We also looked upon other factors like whether people find safe in giving information to AI, ready to work with robot assistant in banks and see if AI is more accurate and able to beat expertise that comes with human experience

KEYWORDS Artificial Intelligence, Financial Sector, Computer Science, Machine Learning, Capital Markets

INTRODUCTION

The invention of computers or machines, their capability to perform various tasks went on growing exponentially. Humans have developed the power of computer systems in terms of their diverse working domains, their increasing speed, and reducing size with respect to time.

A branch of Computer Science named Artificial Intel-

ligence pursues creating the computers or machines as intelligent as human beings. According to the father of Artificial Intelligence, John McCarthy, it is “The science and engineering of making intelligent machines, especially intelligent computer programs”.

Artificial Intelligence is a way of making a computer, a computer-controlled robot, or a software think intelligently, in the similar manner the intelligent humans think. AI is accomplished by studying how human brain thinks, and how humans learn, decide, and work while trying to solve a problem, and then using the outcomes of this study as a basis of developing intelligent software and systems.

WHAT CONTRIBUTES TO AI?

Artificial intelligence is a science and technology based on disciplines such as Computer Science, Biology, Psychology, Linguistics, Mathematics, and Engineering. A major thrust of AI is in the development of computer functions associated with human intelligence, such as reasoning, learning, and problem solving. Out of the following areas, one or multiple areas can contribute to build an intelligent system

AI IN FINANCIAL SECTORS

Financial services isn't ordinarily what anyone would consider a trend-driven industry. But it's a data-intensive industry, and that puts it directly in the path of disruption from artificial intelligence (AI). Wherever their strategies take them, it's becoming increasingly apparent that financial institutions will have to come to grips with AI— along with the implications AI has for safety, inclusion, employment, and the financial services value chain. Thousands of companies all around the world are looking at AI as the next big thing for the finance industry.

Eventually, AI will transform every one of these build-

ing blocks. Technology will make operations efficient enough that asset size, although still important, will no longer be sufficient on its own to build a successful business. As a result, competition to achieve scale of data flow-through will be more important to sustain cost advantages. Meanwhile, revenue will come not from standardization but from the highly customized products and personalized 13 interactions that AI makes possible. Neither will exclusive relationships be a differentiator; in a digitized world, providers will be known for their ability to create well-matched connections. Customers will stay with an institution, not because it's hard to walk away but because their benefits are better there than anywhere else. Process efficiency will result from the interplay of human and artificial strengths. AI is reshaping the building blocks of success in financial service

LITERATURE REVIEW

JOURNAL OF BUSINESS AND MANAGEMENT, 2018- As one of the important representatives of the new round of scientific and technological revolution, artificial intelligence is moving from technology research and development to industrial application, and has become a new driving force for global economic development. In the process of promoting the application of artificial intelligence in the accounting field, it is necessary for the country, enterprises, universities, individuals and other parties to work together, and how to effectively solve the problems arising in the process of application will be the key.

BOSTON CONSULTING GROUP- CDRF 2018- As AI technology develops the demand for talents are also changing. The first change will be an increased demand for talent skilled AI technologies and with soft skills both on technical and application level. AI also create opportunities for new talents who can create, apply and optimize AI technologies.

ACPR FINTECH INNOVATION HUB 2018- Artificial intelligence is a polysemous notion that tend to cover different realities as algorithmic techniques evolve: the report followed a relatively broad definition of artificial intelligence, including all machine learning techniques, but generally excluding robotic processes that automate repetitive cognitive tasks. In

the short term, it seems important that the development of artificial intelligence in the banking and insurance sectors be accompanied by practical reflection on the minimum criteria for governance and control of these new technologies. This should allow for progress, among other things, on techniques to prove the reliability of the algorithms used (for both internal and external audit ability), their “explain ability” and the interactions between humans (clients, advisers, supervisors, etc.) and smart algorithms. It also needs to clarify, more generally, what good “governance of algorithms” might look like in the financial sector.

Sébastien Meunier, **Director of Chappuis Halder & Co, April 2018** - Machine- learning algorithms are typically used for voice/language recognition and generation (e.g., chatbots), image recognition (e.g., self-driving cars) or to solve specific business problems. AI has 5 main areas – investing, credit scoring, fraud detection, market research reporting, customer assistance.

MARUTI TECH-LABS 2018- AI has transformed finance industry in 5 categories- risk assessment, fraud detection, assistant, trading and managing finance. Since the speed at which it is making progressive steps towards making the financial processes easier for the customers, it is very soon going to replace human- and provide faster and much more efficient solutions. Bots are gradually evolving as innovations are being in the AI sector.

OBJECTIVES OF THE PROJECT

- The ability of AI to make recommendation of loan and credit offerings.
- Use of AI in security and fraud detection in financial sectors.
- How will AI perform as Financial Advisor
- AI is used in trading as in when to buy, hold and sell stock.
- How AI is helping to manage the finance.

RESEARCH METHODOLOGY

A brief introduction of Artificial Intelligence and various areas where it is being affected. I will be research-

ing about positive and negative points about how AI has affected Financial sectors. Few examples of AI used in various financial sectors includes banking and stock market. What will the impact when AI will be used in financial sectors. This also includes analysis of how general public thinks will be the impact of AI in financial sectors. The sample size includes 52 respondents with age group of 15- 65.

PRIMARY DATA - [Market research through surveys on various impact of Artificial Intelligence on financial sectors which includes banking and financial markets.](#)

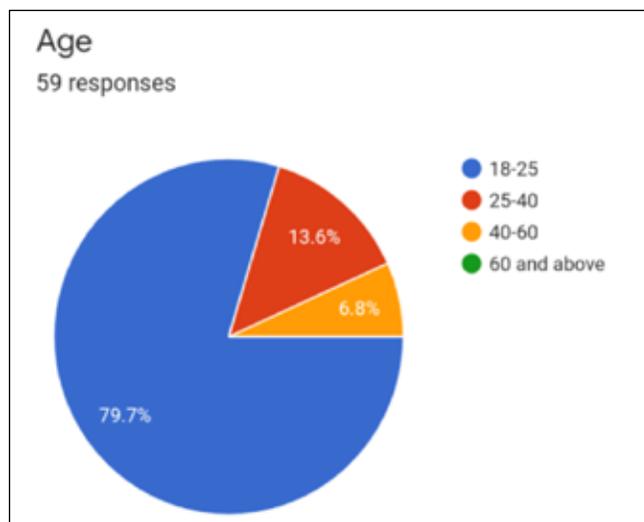
SECONDARY DATA

A study done by Deloitte., Articles from Forbes Magazines about how AI is redefining in financial services landscape, Article from D-zone about impact of AI on financial sectors.

BBVA- contributions of AI in financial sectors, Various examples about AI in finance from bulletin., Analysis of America's 7 Top banks, Cases for AI in finance from Envestnet Yodlee.

DATA ANALYSIS

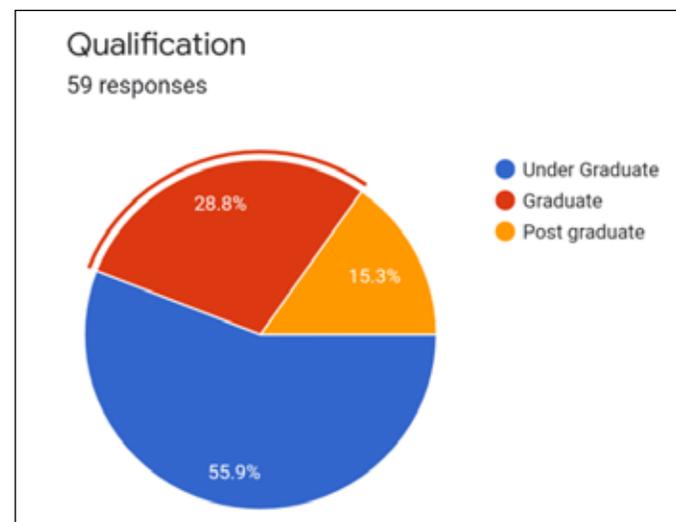
What was the age of respondents?



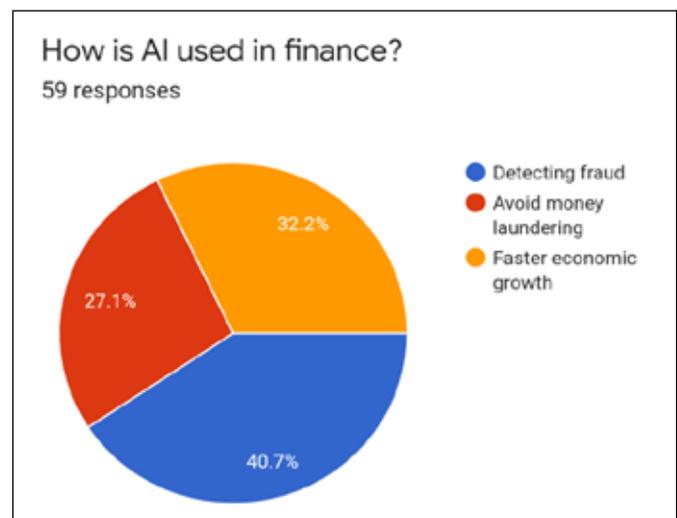
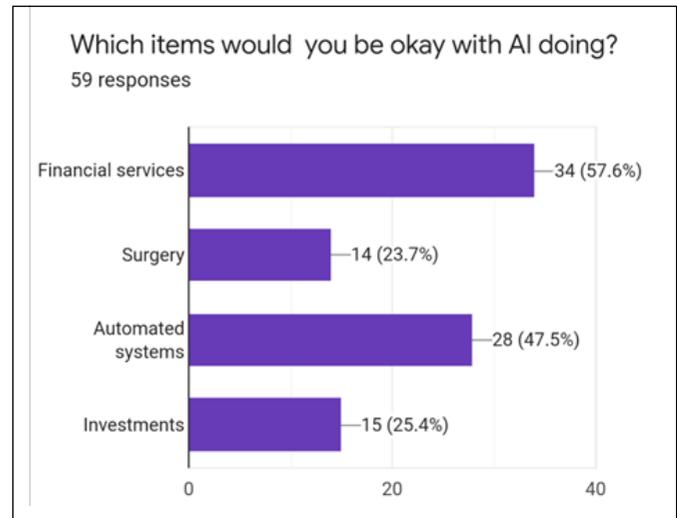
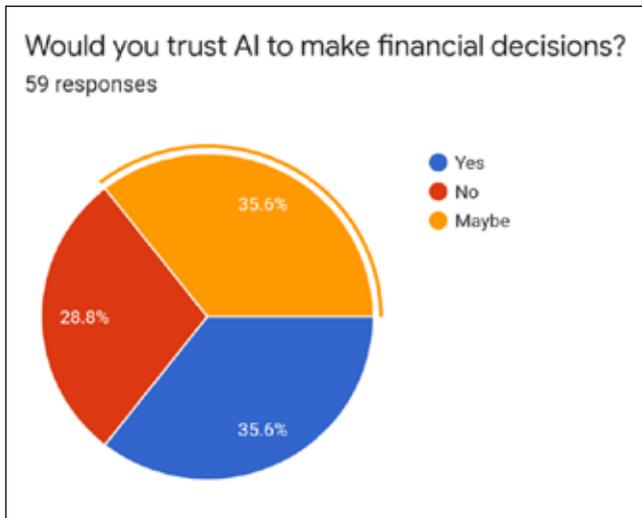
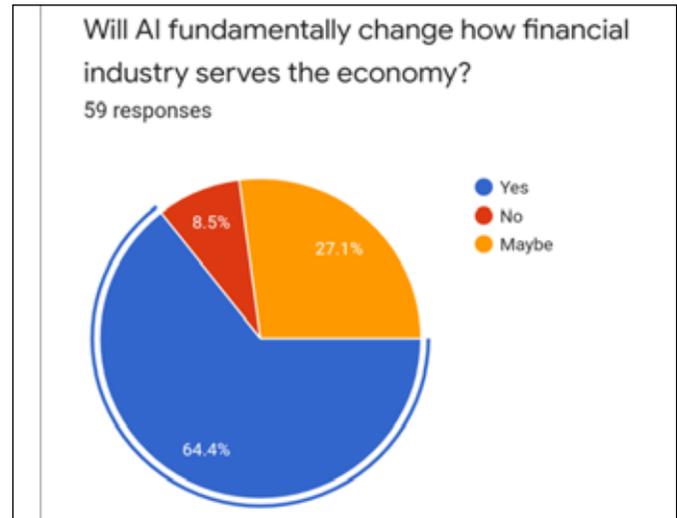
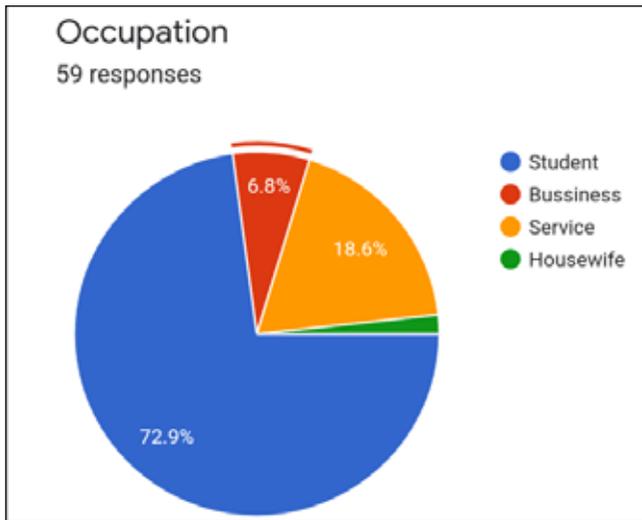
DATA ANALYSIS, INTERPRETATION AND PRESENTATION

Evolving technologies have always had a great impact on businesses because of how they can improve the existing process. Certain technologies offer great scope to take your business to the next level because they have the capacity to change the way you do your business. Intelligences currently the most trending topic due to the opportunity it offers to benefit from its use. There is no other industry except the financial industry who is trying their best to adopt Artificial Intelligence for speed, accuracy, and efficiency in business. Artificial Intelligence and Machine Learning offer a great deal in the finance industry through algorithms in the financial services. At the heart of the Artificial Intelligence are some of the algorithms, which are self-learning and can help the finance industry if fed the right data. There are multiple fields in finance that can eventually benefit from the implementation of Artificial Intelligence and could prove to be of great value to the customer and the financial organization, too. In another couple of years, widespread adoption of cognitive systems and AI is expected to boost world wide revenues. An [IDC report](#) predicts that there venue growth could touch \$47 billion in 2020.

What was the qualification of the respondents?

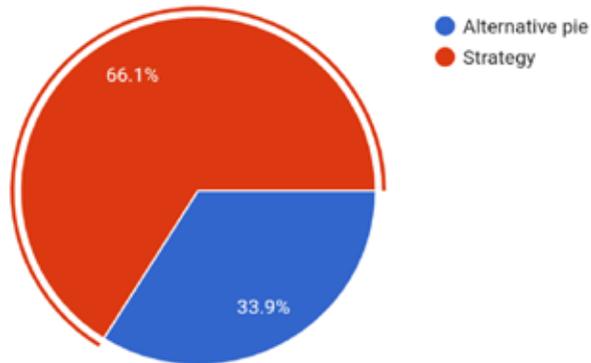


What was the occupation under which the respondents were involved?



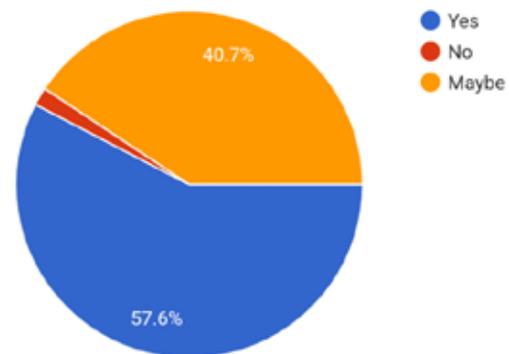
What will be AI in future?

59 responses



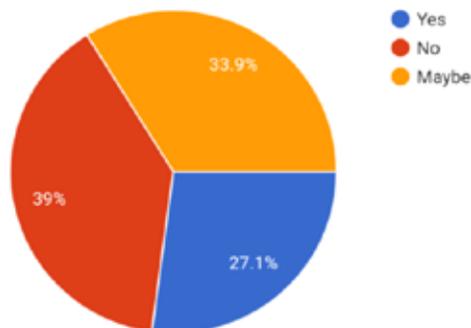
Will AI reduce the amount of frauds?

59 responses



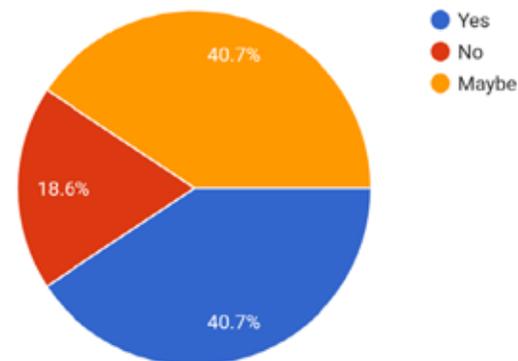
Are current financial regulations adequate for overseeing an AI-driven industry?

59 responses



Is AI right solutions to the problems?

59 responses



FINDINGS

In the present project an attempt is made to study impact of Artificial Intelligence on Financial sectors. The total number of responses were 59 people. Based on the data collected and analysed about the impact of AI, the following findings are given-

1. In the above questionnaire, the age group of 18-25, 25-40 and 40-60 was selected. 79.7%, 13.6% and 6.8% were the respective responses as per the age given.
2. The under-graduate, graduate and post-graduate were the qualification of the total responses. The undergraduate were 55.9%, the graduates were

28.8% and the post graduate students were 15.3%.

3. The student appearing for the questionnaire were 72.9%, business class people were 6.8%. 18.6% were of service class people. Homemakers were 1.7%

4. 64.4% people agrees that the AI fundamentally change how financial industry services the economy. Whereas the people who disagrees were just 8.5% and rest others were not sure.

5. Only 35.6% people agree that the AI is capable of taking the financial decisions and 28.8% do not agree. The 35.6% people are not having the clarity.

6. Artificial intelligence would be most suited to financial services as per the 57.6% vote for it. For the sur-

gery, automated systems and investments people voted 23.7%, 47.5% and 25.4% respectively.

7.33.9% gives the thumbs up and 25.4% disagrees that the AI will end the human discretionary and rest others do not have clear perspective.

8.The number of frauds will be reduced and so 57.6% peoples gives yes and 16.9% disagree. Whereas others doesn't keep up with the thought.

9.27.1% people say that the current financial regulations is adequate for overseeing an AI driven industry and 39% do not say yes.

10.The people with 40.7% says that the AI is the solution to the problem. 18.6% do not say to that.

11.AI will be alternative pie for 33.9% and strategy for 66.1%.

CONCLUSION

AI is an exciting advancement. It promises to transform the global financial system in ways that can drive broad-based economic prosperity. At the same time, AI's potential risks to economic and societal well-being are too great to be left to chance. Artificial Intelligence in finance is able to continuously learn and re-learn the ex-

isting data and patterns, which affect the finance industry. AI provides a great scope in developing the current products and services and also provides an opportunity to develop these existing products in the portfolio. Artificial Intelligence can regularly study the market to know what the consumers are looking for and can provide them with those services before anyone in the market. No one knows what the consequences will be. But we do know this much. Whatever its benefits, AI depends on the global financial system to blunt whatever negative impact it might have on society. We humans are clever in our own right, and if automated decision-making is something we can do, we can also make the tools to control it— including the ethical uncertainties it creates. It is the early days of AI in the financial services industry but the technology is increasingly going to be more important to organizations to innovate and remain competitive. Based on the survey we found that AI can be used in various sectors as – assistant, planner, analyzing, predicting financial market etc. and the use of AI is continuously increasing. If you haven't already, it is time to start learning about AI technologies and strategizing for the future—better late than never.

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A STUDY ON INFORMATION SECURITY; CYBER CRIMES

DIVYESH BAJAJ

*Researcher, Thakur College of Science and Commerce,
Mumbai*

Divyeshsbajaj2000@gmail.Com

ABSTRACT

This paper revolves around the topic Information Security; Cyber Crimes. A descriptive study was done by conducting a survey, to collect the responses from the respondents consisting of both male and female. In today's 21st century, Internet is among the most important inventions, which has affected everybody's life. It has crossed every barrier and have changed the way we used to talk, play games, work, shop, listening music, order food, etc. It has made our life by making it comfortable. Information security is the protection of information and information systems from unauthorized access, use, or disruption. It is important for employees and all stakeholders to understand information security policies and guidelines. To minimize the effects of possible breaches & to comply with the security policies, we need to have some good work practices. The crime that involves and uses computer devices and Internet is known as cybercrime. Cybercrime can be committed against any individual or group, or it can be committed to target the government of any country as well as any private organizations. Cybercrime can cause direct as well as indirect harm to whoever the victim is. However, the largest threat of cybercrime is on the financial security.

KEYWORDS

Information Security; Cyber Crimes, Financial Security, Internet, 21st Century.

INTRODUCTION

Cybercrime, or computer-oriented crime, is a crime that involves a computer and a network. The computer may have been used in the commission of a crime, or it may be the target. Cybercrimes can be defined as: "Offences that are committed against individuals or groups of individuals with a criminal motive to intentionally harm the reputation of the victim or cause

physical or mental harm, or loss, to the victim directly or indirectly, using modern telecommunication networks such as Internet (networks including chat rooms, emails, notice boards and groups) and mobile phones (Bluetooth/SMS/MMS)". Cybercrime may threaten a person or a nation's security and financial health. There are many privacy concerns surrounding cybercrime when confidential information is intercepted or disclosed, lawfully or otherwise. Debarati Halder and K. Jaishankar further define cybercrime from the perspective of gender and defined 'cybercrime against women' as "Crimes targeted against women with a motive to intentionally harm the victim psychologically and physically, using modern telecommunication networks such as internet and mobile phones. Internationally, both governmental and non-state actors engage in cybercrimes, espionage, financial theft, and other cross-border crimes. Cybercrimes crossing international borders and involving the actions of at least one nation-state is sometimes referred to as cyberwarfare.

Cybercrime encloses a wide range of activities but these can generally be divided into two categories:

Crimes that aim computer networks or devices. These types of crimes involves different threats (like virus, bugs etc.) and denial-of-service (DoS) attacks.

Crimes that use computer networks to commit other criminal activities. These types of crimes include cyber stalking, financial fraud or identity theft.

CLASSIFICATION OF CYBER-CRIMES

Cyber Extortion:

Cyber extortion occurs when a website, e-mail server or computer system is subjected to or threatened with repeated denial of service or other attacks by malicious hackers. These hackers demand huge money in return

for assurance to stop the attacks and to offer protection.

Cyber Warfare:

Cyber warfare is the use or targeting in a battle space or warfare context of computers, online control systems and networks. It involves both offensive and defensive operations concerning to the threat of cyber-attacks, espionage and sabotage.

Internet Fraud:

Internet fraud is a type of fraud or deceit, which makes use of the Internet and could include hiding of information or providing incorrect information for deceiving victims for money or property. Internet fraud is not considered a single, distinctive crime but covers a range of illegal and illicit actions that are committed in cyberspace.

Cyber Stalking:

This is a kind of online harassment wherein the victim is subjected to a barrage of online messages and emails. In this case, these stalkers know their victims and instead of offline stalking, they use the Internet to stalk.

CYBER SECURITY

Cyber security is a potential activity by which information and other communication systems are protected from and/or defended against the unauthorized use or modification or exploitation or even theft. Likewise, cyber security is a well-designed technique to protect computers, networks, different programs, personal data, etc., from unauthorized access. All sorts of data whether it is government, corporate, or personal need high security; however, some of the data, which belongs to the government defense system, banks, defense research and development organization, etc. are highly confidential and even small amount of negligence to these data may cause great damage to the whole nation. Therefore, such data need security at a very high level.

How to Secure Data - Let us now discuss how to secure data. In order to make your security system strong, you need to pay attention to the following –

- Security Architecture.

- Security Assessment Procedure.
- Security Policies.
- Risk Management Policy.
- Backup and Restore Procedures.
- Risk Assessment Procedures.

REVIEW OF LITERATURE

Nappinai N. S. (2010) The author in his paper “Cyber Crime Law in India has law kept pace with Emerging Trends? An Empirical Study” highlighted some important provision of the criminal laws in India relating to data protection, privacy, encryption and other cybercrime activities and to the extent, said provisions are enforced to fight not just the present but future trends in Cyber Crime.

Rohas N. (2008) In the book “fundamentals of cyber law” author has discussed about basics terms and definition related to computers and cyber space. There is detailed explanation about the IT Act 2000, Indian Penal Code (IPL) and Indian Cyber Law. Author has also discussed almost 21 cyber-crimes, which are committed in the cyber space, and what are the liable punishments for these cyber-crimes.

Jain, (2005): Jain has described, in this context of cybercrime where interruption triangle of opportunity, motive and means for committing cyber-crime explicitly explained by him He further elaborated that there must be a reasonable motive to commit a cybercrime. This could be just to prove a concern to get financial gains. The criminals use ready-made software or programming languages as a means to commit crimes. They have become very advanced and their level of committing the crimes is very high. They can take any kind of risks due to easy access to information available on the web. In a way, there are multiple opportunities available to cyber-criminal. The system vulnerabilities offer such opportunities.

AIMS AND OBJECTIVES

- To study about the Cyber-crimes as well as Cyber Security.

- To study about the prevention of Cyber-Crimes.
- To know the types in Cyber-Crimes.
- To understand whether there will be any impact of such attacks on an individual personal life/ health.

HYPOTHESIS

H0: There will be no impact of Cyber-attacks on an individual personal life/ health.

H1: There will be an impact of such Cyber-attacks on an individual personal life/ health.

RESEARCH AND METHODOLOGY

Research Design: Descriptive & T-Test tool applied.

Sources: This paper contains both primary as well as secondary data.

Primary data- Primary Data has been collected by conducting online survey.

Secondary Data-Secondary data has been collected through various websites.

DATA INTERPRETATION

Q.1] Have you ever been a victim of Cyber-crimes/ attacks?

Q.2] If yes, then how many times have you been a victim of cyber-crimes?

Q.3] Do you have any Anti-virus software installed (to be safe from virus/ cyber-attacks) on your PC/ Laptop?

Q.4] Have you ever lost money due to Cyber-attacks (crimes)?

Q.5] Do you think that Cyber-attacks can have impacts on a person's personal life/ health?

Q.6] Do you think that the laws introduced/ in-effect to curb such attacks are able to control cyber criminals from performing such acts?

Q.7] Do you feel it is extremely important to be safe online.

TESTING OF HYPOTHESIS

t-Test: Two-Sample
Assuming Unequal
Variances

	AGE	Q. NO 5
Mean	19.72727	9.181818
Variance	1.064935	3.298701
Observations	22	22
Hypothesized Mean Difference	1	
Df	33	
t Stat	21.43304	
P(T<=t) one-tail	3.06E-21	
t Critical one-tail	1.69236	
P(T<=t) two-tail	6.11E-21	
t Critical two-tail	2.034515	

As we have applied T-test in this paper, and since the P value was more than 0.05, thus, our null hypothesis (H0) is rejected.

FINDINGS

A survey/ questionnaire was made to collect the responses from the respondents. From that, 72.7% of the respondents were Male and 27.3% of the respondents were Female. Most of the respondents were of the age of 20(54.5%), while the remaining ones were of the age of 18, 19, 21, and 23.

1. 68.2% of the respondents said that they never had been a victim of Cyber-attacks, whereas 31.8% of the respondents said that they had been a victim of Cyber-crimes/ attacks.
2. 90% of the respondents who had agreed on being a victim of Cyber-attacks said that they had been a victim only for one time.
3. 72.7% of the respondents agreed that they have Anti-virus software installed on their respective PC/ Laptop to protect themselves from such cyber-attacks.
4. 95.5% of the respondents said that they never lost their money due to Cyber-crimes/ attacks.
5. 81.3% of the respondents agreed that Cyber-at-

tacks could have an impact on a person's personal life/ health.

6. 40.9% of the respondents think that maybe the laws introduced/ in effect to curb such attacks are not able to control such cyber-criminal activities.
7. 81.8% of the respondents agreed that it is extremely important to be safe online.

PREVENTION OF CYBER CRIME Below are some points by means of which we can prevent cyber-crime:

1. **Use strong password:** Maintain different password and username combinations for each account and resist the temptation to write them down. Weak passwords can be easily cracked using certain attacking methods like Brute force attack, Rainbow table attack etc.
2. **Use trusted antivirus in devices:** Always use trustworthy and highly advanced antivirus software in mobile and personal computers. This leads to the prevention of different virus attack on devices.
3. **Keep social media private:** Always keep your social media accounts data privacy only to your friends. Also, make sure only to make friend who are known to you.
4. **Keep your device software updated:** Whenever you get the updates of the system software update it at the same time because sometimes the previous version can be easily attacked.

CONCLUSION

The cyber-crime is a new invention of crimes made by a class of intellectual, sophisticated criminals. Since long time the criminal jurisprudence was very ignorant of such types of crimes, although these were committed in different forms during early development of crimes and criminology. The criminals of this advanced age endeavor to commit this new crimes with

the help of computers through Internet by exploiting cyber space. The Internet is a vast worldwide network of powerful computer sensors, which are constantly connected to each other via high-speed communication cables. All the information that is on the Internet is stored on one of the servers. The Internet is a virtual space in which user send and receive e-mail, log in to remote computers, browse-databases information and send and receive programmes contained in the computers. It may be said when we compare the impact of traditional crime with that of crimes committed through computer on cyber space, the cyber-crime is much more pervasive causing injury to country's economic structure, legal frame work and also to human rights. This sort of crimes always prevents human being to live with dignity. The time has come to consider the impact of such type of crimes on the society with due perspective, so that the cyber criminals cannot go escort free. The protection of cyber-crimes is the prime concern of these days and is a vital part of social, cultural and security aspect of a country. The cyber-crime cell and police station have also been created for detection and investigation of such crimes. The cyber-crime is a great threat to the human rights. The number of security attacks being designed to steal personal information is increasing with accelerating pace. The attackers are targeting personal information to make a profit out of their operation and threatening the basic philosophy of 'right to live with dignity.' Cyber-crime may originate in any part of the world and can pass easily across many national boundaries. Such a situations increase both the technical and legal complexities of investigating and prosecuting these crimes.

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***EXPLORING E-BUSINESS ADOPTION BY
MSMES IN DELHI NCR:***

A PILOT STUDY

Dr. Anupriya Pandey, IGNOU

E-mail: anupriya@ignou.ac.in

Varsha Jaiswal, IGNOU

varsha9193jaiswal@gmail.com

INTRODUCTION:

The business literature is full of such evidences where business organisation in order to achieve their motive or to establish themselves adopted various means. The technological advancement have made adoption of innovations a new driver for the growth of business. E-business is one of such innovation. In the business literature, purely physical organizations are referred to brick(s) and-mortar organizations. In contrast, organizations which conduct their business totally online are known as pure-play organizations, and those organizations that have identification on both platforms are known as click-and-mortar (click-and-brick) organizations. According to a report by Internet and Mobile Association of India (IMAI), India has second largest internet user base after China at the end of financial year 2019 with 451 million monthly active internet users. From the data it can be interpreted that the coming generation will be internet savvy and if the people are internet savvy the business needs to be in order to uphold their presence. A firm whether big or small in order to survive in today's competitive business environment find it necessary to mark an online presence (McCole and Ramsey, 2005). The establishment of this online presence is done by adoption and use of internet technologies in conducting business activities which is popularly known as E-business. The online presence allows the enterprises to spread their offerings around the globe regardless they are big or small and also allow them to manage their business activities more effectively. The Indian Micro Small and Medium Enterprises (MSMEs) are the backbone of the national economic structure. With 65 million MSMEs functioning within the geographical boundaries of India it contributes heavily towards India's socio-economic well-being and development. The MSMEs can certainly benefit from adopting the new ways of conducting busi-

ness. As per the report of World Bank "E-business Adoption by Micro and Small Enterprises" e-business is a powerful business tool to help SME increase market visibility, improve access to clients, reduce transaction and administrative costs and contribute to their competitiveness. Given the capability of MSME segment in India, few government activities have been propelled to make a favorable business condition in the present situation. Initiatives like Digital India, Skill India, Startup India and Make in India plan to furnish MSME players with a level playing field and a complete push towards upgraded efficiency. The Government of India for promotion of ICT and boost MSMEs have launched Government E-marketplace, Digital MSME scheme and on MSME Day 2019, the government announced that it is considering to set up an E-commerce platform for MSMEs. The Indian MSMEs at present, are still at the development stage in terms of e-transformation. This transformation will surely help the MSMs to improve their conditions.

REVIEW OF LITERATURE:

This section reviews those literature which helps to develop an understanding of E-business, how e-business adoption can be conceptualised, what factors motivates entrepreneurs to adopt e-business technologies and what impedes its adoption and further development in an organization.

ELECTRONIC BUSINESS OR E-BUSINESS:

Simply defined E-business refers to the use of information and communication technology especially the internet for conducting business activities. These activities include both the front end and back end activities of an organization. It can be defined as "The use of Internet technologies to link customers, suppliers, business partners, and employees using at least one of the following: (a) e-commerce websites that offer

sales transactions, (b) customer service websites, (c) intranets and enterprise information portals, (d) extranets and supply chains, and

(e) IP electronic data interchange” (Wu, Mahajan and Balasubramanian, 2003). It can be understood as a mean of conducting the value chain activities by using the internet (Zhu, Kraemer and Xu, 2006). The use of e-business technology include the internet, email,

secured online transaction and ownership of webpage (Ifinedo, 2011). **Thus, it can be understood that e-business is a modern method of conducting business process by making use of the internet technologies, the core components of business process includes information handling, communication, transaction and internal administration.**

BUSINESS ADOPTION:

In the studies under review, e-business adoption is measured from various viewpoints. Some authors look at the type of applications that are used to characterise e-business adoption.

Others investigate the intensity with which these applications are used. In most studies a combination of aspects or features is used to obtain a characterisation of e-business adoption. The study of such technology adoption by firms have also been done through the stage model where the progression of the firms in such adoption is shown. The adoption of such technology by business cannot be viewed as dichotomous outcome, such as adopted or not adopted. Business can adopt a number of combinations of technologies with various degrees of complexity and sophistication. Wu et.al, also stated, “Not all aspects of e-business adoption may proceed in tandem for example, a business may implement online sales, but not e-procurement. Furthermore, certain e-business initiatives are easy to adopt, whereas others may require substantial resources and/or organizational restructuring. For example, e-procurement can call for compatible electronic data generation and exchange interfaces across businesses, substantial systems redesign and integration within those businesses, personnel training, and significant commitment from top management” (Wu, Mahajan and Balasubramanian, 2003). Thus, from the

literature, it is evident that e-business cannot be approached as a single application, but rather as a term encompassing a number of applications varying from the very simple use of e-mail to more complex applications.

Regarding this, e-business adoption in this study is not considered as dichotomous measures, adopted or not adopted. This consideration becomes one of the strengths of this study, and it is expected to eliminate the weaknesses of the use of dichotomous measures by previous studies. The adoption model based on business process will categorise enterprises into different levels of e-adoption which will also enrich the understanding of MSME owners or managers in regard to the development of e-business adoption in organizations.

OBJECTIVE OF THE STUDY:

In this study the general aim is to examine the present situation of e-business adoption in MSMEs, the specific objectives of the study are:

To investigate the current state of e-business adoption in MSMEs in Delhi NCR.

To identify the factors which motivate MSMEs entrepreneurs to adopt e-business.

To identify the barriers which impede the adoption of e-business.

RESEARCH METHODOLOGY:

The study is based on primary data, where data is collected through a self-administered questionnaire to probe further into the e-adoption aspect and build a framework for measuring e-business adoption model. The sample consists of 50 MSMEs located in Delhi NCR. The sample was drawn from the list of registered MSMEs provided by the Directorate of Industries, Delhi. The contents of the questionnaire includes four section, first related to the enterprise profile and the demographics of the owner, second to know about the level of e-business adoption, third on the enabling factors of e-business adoption and fourth on the barriers impeding adoption. Use of five point Likert scale is done to measure the attributes in

question and descriptive analysis technique is used to

explain these attributes and any relation between.

DATA ANALYSIS:

DEMOGRAPHIC AND FIRMS PROFILE:

TABLE 1

Firm's characteristics	Frequen- cy	Percent- age
Gender		
male	50	100%
female	0	0%
Age		
21-30	10	20%
31-40	18	36%
41-50	12	24%
More than 50	10	20%
Education		
high school	11	22%
vocational or diploma	3	6%
bachelor's	31	62%
master's	5	
INDUSTRY		
manufacturing	41	82%
service	9	18%
SIZE		
micro	21	42%
small	28	56%
medium	1	2%
LEGAL STATUS		
sole proprietorship	20	40%
partnership	5	10%
company	25	50%

AGE OF THE FIRM

1-5years	23	46%
6-10 years	4	8%
more than 10 years	23	46%

Table 1 shows certain characteristics about Delhi NCR's MSMEs and their owners. With regard to ownership control all the enterprises in our sample are owned and managed by male entrepreneurs which highlights the gap between the presence of male and female entrepreneurs in the state. Majority of the owners have bachelor's degree.

TABLE 2

E - b u s i n e s s application	Frequen- cy	Percent- age
e-information	37	74%
e- communication	10	20%
e- administration	10	20%
e-sales	1	2%
e-procurement	0	0%

Table 2 shows the number of enterprises who adopted different e-business applications in their business processes. We have used business process based model to measure the extent of adoption of e-business by firm. The firms were asked to rate on five point scale their extent of the use of e-business application in the mentioned process. The five business process were information, communication, sales, procurement and internal administration. Majority of the firms used e-information technologies 37 in total, the number of firms doing sales activities through the e-business application in our sample is only one. There is no firm who is engaged in e-procurement. Only 10 enterprises use e-business applications for performance of internal administration and communication process. Based on the status of the use of e-application the firms are further classified on the intensity of use of the e-business adoption. They were categorised into five levels non-users, low-users, moderate users, active users, innovators.

Those whose mean score is less than one is classified as non-user, between 1 to 2 as low user, between 2-3 as moderate user, between 3-4 as active user and 4-5 as an innovator. There are 13 (26%) firms who don't use any e-business applications and thus fall within non-users, 40 (80%) firms who use two technologies and thus fall with low user, only one firm as moderate user and no firm in the innovator category.

TABLE 3

STATEMENT	TOTALLY DIS- AGREE(1)	D I S - T R A L(3)	N E U - T R A L(3)		TOTAL- LYAGREE (5)	MEAN
E-business offers a relative advantage over traditional approach in terms of cost and revenue.	1	2	11	18	8	3
E-business offers a possibility to access new market.	0	4	13	17	6	2.9
E-business is required because of the nature of goods and services sold	4	11	5	16	4	2.5
E-business is required because of the pressure of the stakeholders.	1	3	18	18	10	3.66
E-business improves the image of the enterprise.	0	2				3.92

As it is evident that the level of participation of MSMEs is low it is important to understand the attitude of the entrepreneurs towards e-business adoption. The entrepreneurs were asked about what motivates them to adopt this modern method of conducting business. From the literature the enabling factors were identified and then the entrepreneurs were asked to measure it on a five point scale. Table 3 suggest that majority of the entrepreneurs see e- business as a tool to improve their enterprise image and thus they adopted this technology. The pressure from the stakeholders as suppliers and customers also push them to invest in e- business.

TABLE 4:

STATEMENT	TOTALLY DISAGREE(1)	ISAGREE(2)	N E U - T R A L(3)		TOTALLY AGREE (5)	MEAN
Lack of awareness by the owner.	1	3	4	15	27	4.2
Concern about security and payment issues.	0	6	9	15	20	3.9
High cost of implementation	10	16	3	12	9	2.6
Infrastructural issues.	0	0	8	22	20	4.2
Lack of technical skill and IT knowledge among employees.	2	2	5	22	17	3.6
Lack of support system from government	0		7			3.5

Despite the entrepreneurs believe that e-business offers benefits its adoption is low, there can be many constraints and barriers which the entrepreneurs are facing. Table 4 shows that the major barrier faced by the entrepreneurs in adopting these technologies is the technological barrier followed by the organizational barrier. The entrepreneurs find it difficult to understand these technologies and lack the necessary infrastructure required for its proper implementation. Organisational issues also impede this development process as they lack the competent staff for adoption of such technologies. The financial challenges here is not regarded as major barrier because the entrepreneurs believe that the benefits they will reap from these advancement will compensate for the cost thus they don't consider finance as a major barrier in adoption of e-business.

CONCLUSION:

The preliminary study helps draw some conclusions. Adoption of e-business in MSMEs in developing countries is different from the developed countries. The MSMEs in developing countries fall behind with adoption due to barriers, prominent and inherent in a developing country. It is interesting to note, however, that this investigation confirms findings of previous research. Despite the limitations of most developing countries, it appears that e-business is indeed relevant to developing countries, despite the current limitations with the existing infrastructure and other issues related to the economical and socio-cultural conditions. Adoption of e-business can be an extremely beneficial tool in developing countries provided that certain problems are resolved which stand in the way of widespread adoption of e-business.

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An Impact of GST On Consumption of Telecommunication Services (Dahisar Area) In Mumbai

Mr. Parth Shah

Student, MMS

Aditya Institute of Management Studies and Research, Mumbai

Mr. Abhishek Singh

Student, MMS

Aditya Institute of Management Studies and Research, Mumbai

ABSTRACT

The introduction of goods and service tax (GST) is one the biggest economic and taxation reforms in India in the field of indirect tax. The GST was introduced on 1st July, 2017. The concept of GST comprises of dual structure, which means it will have two components- the central GST and the state GST. GST is expected to simplify tax administration and also to promote "Make in India" initiative. Presently, the telecom industry faces several shortcomings such as effect of taxes, issues with the classification of service etc. This research paper presented on the basis of primary data to collect information of the data about the impact of GST on telecommunication service, this paper presents the concept of GST, impact of GST in Telecommunication sector within the Dahisar Area of Mumbai, benefits along with statistical analysis. This may be helpful for the consumer (layman) to understand GST in better way.

KEYWORD: GST, Telecommunication consumers

INTRODUCTION

The GST system was first introduced in France in 1954. In India, where people pay many taxes which create confusion for them. Presently we pay Direct and Indirect taxes in various sectors. In indirect tax, one of the biggest reforms was undertaken in India i.e. Goods and Service Tax (GST). On 1st July, 2017, the concept of GST was introduced in India. By subsuming almost 17 indirect taxes at Central and State levels. The Goods and Services Tax (GST) Bill or GST Bill, officially known as The Constitution (One Hundred and Twenty-Second Amendment) Bill, 2014, proposes a national Value added Tax to be implemented in India. GST is levy on manufacture, consumption of goods and services and sale of goods and services

at a national level. The former Comptroller and Attorney General (CAG) of India, Mr. Vinod Rai in his inaugural address to the National Conference on GST put forth the concept as "An integrated scheme of taxation that does not discriminate between goods and services and is a part of the proposed tax reforms that centre on evolving an efficient and harmonized consumption tax system in the country."

Indian Telecommunication sector with its huge reach across the country is the second largest in the world in terms of total number of subscribers. In 2017, consumption of mobile data, in India, surpassed the combined usage of the US and China. Number of users has increased exponentially after arrival of smartphones. This was an ideal shift in the history of telecom sector.

Telecom services providers has played important role and they have also shown a much promising picture to the consumers in terms of prices and benefits. But if you look at the last year's trend in telecom sector, data realization per MB is going to fall by 20 - 25% in 2017. The VoLTE and LTE enabled phones are becoming cheaper in the coming year. But the new GST will lead to a high amount of compliance cost to telecom sector.

REVIEW OF LITERATURE

Pinki, Supriya Kamma, Richa Verma (July 2014) studied, "Goods and Services Tax"- Panacea for Indirect Tax System in India," and concluded that new NDA government in India is supporting the implementation of GST and Central and State Government is benefitted. In long run, it will be beneficial to Consumers as well if its implementation is backed by strong IT infrastructure.

T.V. Ramachandran (2005): He has analysed various

performances of Indian Telecom Industry based on volumes excluding margins. According to him, Indian consumers are extremely price sensitive depending on number of socio-demographic factors i.e. high GDP growth, rising income levels etc.... Various factors such as booming knowledge of growing urbanization, booming GDP growth, incomes have played a major role of contributing towards tremendous growth of this sector. In addition to this, he stated that the focus of telecom policy is vision of world class telecommunication services at reasonable rates. Convergence of services is a major new emerging area.

Rajan Bharti Mittal (2005) explains the paradigm shift in the way people communicate. There are over 1,146.49 million mobile phone users in the India today, more than the times the no. of PCOs. India today has the largest telecom network in the world up from 14th in 1995, and second largest among the emerging economies. It is also the world's largest market with a pie of 278.6 million. The telecom revolution is propelling the growth of India as an economic powerhouse while bridging the developed and the developing countries.

Marine and Blanchard (2005): The reasons for the unexpected bloom in mobile networks was been identified by Marine and Blanchard in the year 2005. According to them, most of the cell phones, based on GPS (GLOBAL SYSTEM FOR COMMUNICATION) standard require almost very less investment as compared to various fixed lines. They also stated that besides this, a wireless infrastructure has more mobility, usage information sharing, rapid profitability, and along with this the extent of 90% usage of prepaid cards simplifies management of customer base. Addition to this, as per their findings, it is more suitable to people's way of life-rural, urban and sub-urban subscribers.

OBJECTIVE OF STUDY

- To find out influence of GST over consumption behaviour.
- To find out awareness about GST rates on

telecommunication services among consumers.

RESEARCH METHODOLOGY

The researcher has taken opinion from 115 respondents. The research was conducted on the basis of primary data collected through questionnaire designed to collect information of the data about the impact of GST on telecommunication services.

ANALYSIS AND INTERPRETATION

Occupation * What rate of GST is charged on the telecommunication services?					
Occupation	What rate of GST is charged on the telecommunication services?				Total
	5.00%	12.00%	18.00%	28.00%	
Housewife	2	3	1	0	6
Retired	2	1	0	0	3
Self employed	2	2	6	0	10
Service	2	10	19	1	32
Student	1	2	61	0	64
Total	9	18	87	1	115

From the above table it can be seen that 19(59%) employees, 6(60%) self-employed and 61(95%) students are aware about the correct rate of GST charged on telecommunication services. Whereas 1(17%) housewife and retired individual were not aware about the correct charges. So those who are into education and jobs are aware about the correct rate of GST.

H0: There is no relation between occupation and awareness about GST rate on telecommunication services.

H1: There is a relation between occupation and awareness about GST rate on telecommunication services.

To prove the hypothesis, the researcher has used Chi-Square Test.

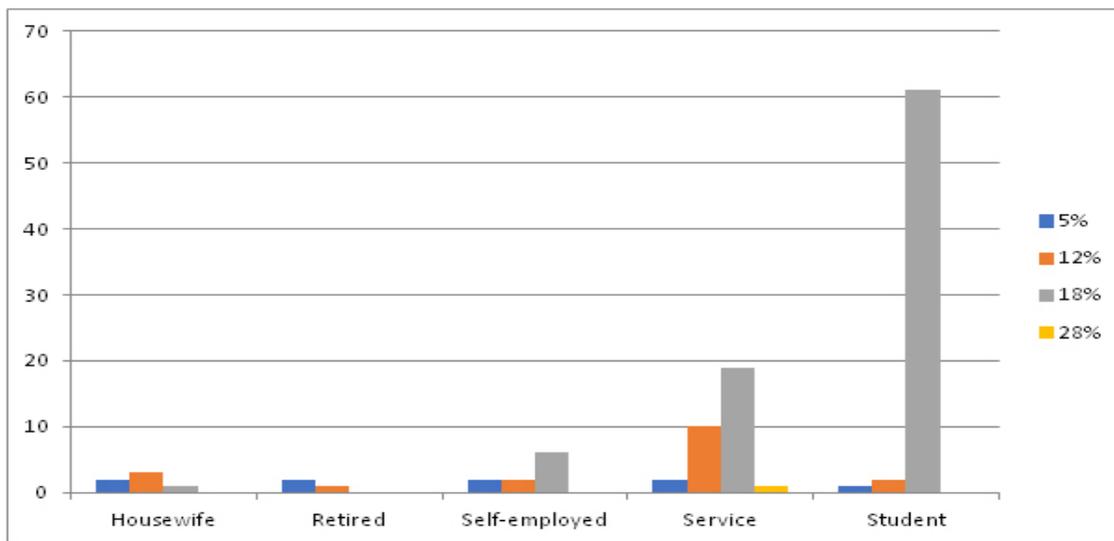
Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	53.521 ^a	15	.000
Likelihood Ratio	47.665	15	.000
N of Valid Cases	115		

The P value is 0.000 < the significance level of 0.05.

Therefore, H₀ is rejected.

Hence, there is a relation between occupation and awareness about GST rate on telecommunication services.

Occupation * What rate of GST is charged on the telecommunication services?**Annual income * Will GST influence your consumption behaviour?**

Annual income	Will GST influence your consumption behaviour?		Total
	No	Yes	
< 2.5 lakhs	16	67	83
> 10 lakhs	3	0	3
2.5 - 5 lakhs	13	11	24
5 - 10 lakhs	4	1	5
Total	36	79	115

Out of the total 83 respondents, 67(81%) from the income group of less than 2.5 lakhs, are agreed that GST influences the consumption behaviour. But as the income increases there are less number of respondents influenced by the impact of GST.

H₀: There is no relation between annual income and influence of GST on consumption behaviour.

H1: There is a relation between annual income and influence of GST on consumption behaviour.

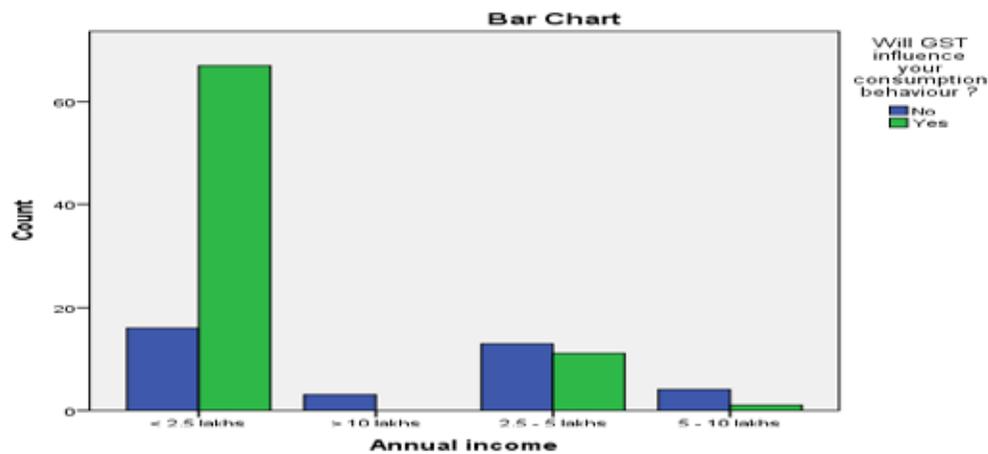
To prove the hypothesis the researcher has used Chi- Square Test.

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.513 ^a	3	.000
Likelihood Ratio	23.464	3	.000
N of Valid Cases	115		

The P value is 0.000 < the significance level of 0.05. H₀ is rejected.

Therefore, there is a relation between annual income and influence of GST on consumption behaviour.



Additional Statistical Analysis:

Age

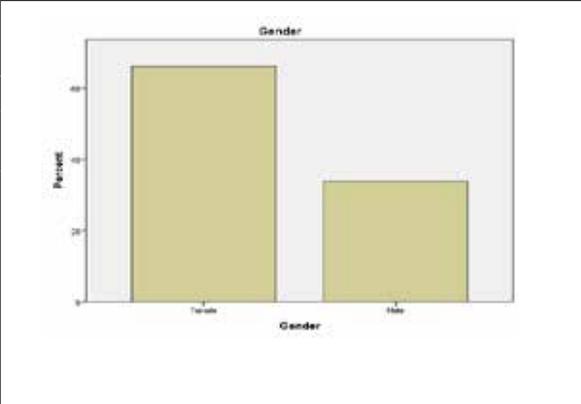
	Frequency	Per - cent	Valid Per - cent
18 – 25	67	58.3	58.3
26 – 35	20	17.4	17.4
36-50	13	11.3	11.3
50 above	6	5.2	5.2
Below 18	9	7.8	7.8
Total	115	100.0	100.0

The bar chart shows the percentage distribution of respondents across five age groups: 18-25, 26-35, 36-50, 50 above, and Below 18. The y-axis represents the percent, ranging from 0 to 60. The 18-25 age group has the highest percentage at approximately 58.3%.

Age	Percent
18-25	58.3
26-35	17.4
36-50	11.3
50 above	5.2
Below 18	7.8

From the above table, out of 115 respondents there are 7.8% respondent below 18 years, 58.3% from 18-25 years, from 26-35 years there are 17.4% respondent, from 36-50 and 50 above years there are 11.3% and 5.2% respondents respectively.

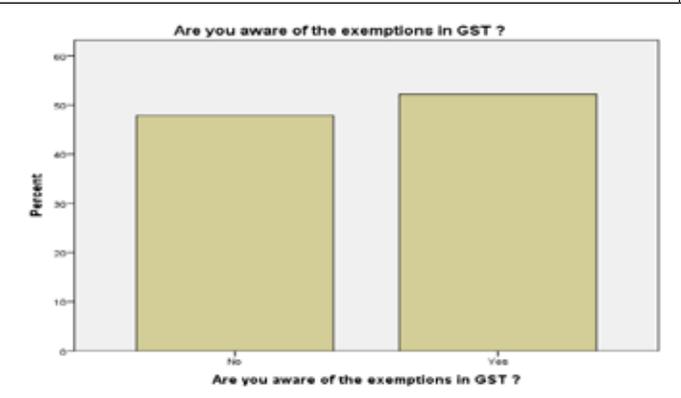
	Frequency	Percent	Valid Percent
Female	76	66.1	66.1
Male	39	33.9	33.9
Total	115	100.0	100.0



In the above table it can be seen that there are 66.1% female respondent, 33.9% male respondent out of total 115 respondents.

Are you aware about the exemptions in GST?

	Frequency	Percent	Valid Percent
No	55	47.8	47.8
Yes	60	52.2	52.2
Total	115	100.0	100.0



Out of 115 respondents in the above table, 52.2% respondents knowing about exemptions in GST. Whereas 47.8% respondents don't know about exemptions in GST.

How do you get to know about GST?

	Frequency	Percent	Valid Percent
College Education	3	2.6	2.6
Current job	1	.9	.9
Friends / family	31	27.0	27.0
Mass media	49	42.6	42.6
Online source	29	25.2	25.2
Work place	2	1.7	1.7
Total	115	100.0	100.0

From the below table, it can be observe that out of total respondent, 25.2% get to know about GST from online sources, 42.6% from mass media, 27% from friends/family and 5.3% from other sources such as current job/ college education/workplace.

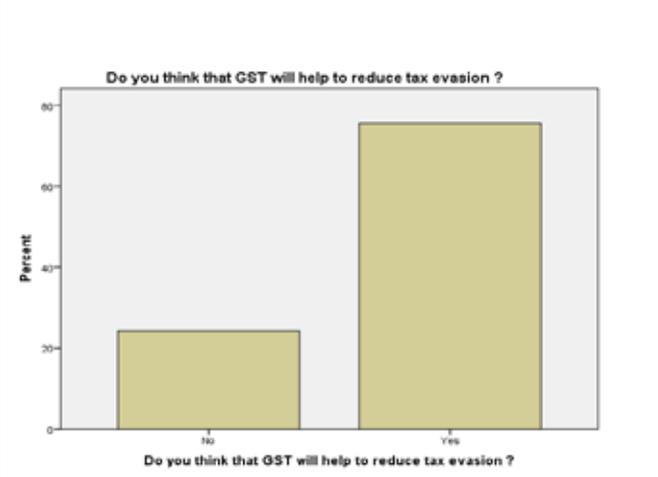
Do you feel that the rate of GST charged on the telecommunication services should be decreased from the current level?

	Frequency	Percent	Valid Percent
No	30	26.1	26.1
Yes	85	73.9	73.9
Total	115	100.0	100.0

In the above table, it can be observed that 26.1% respondent feels that rate of GST charged on telecommunication services should not be decreased from current level. on the other hand 73.9% feels that it should be decreased.

Do you think that GST will help to reduce tax evasion?

	Frequency	Percent	Valid Per-cent
No	28	24.3	24.3
Yes	87	75.7	75.7
Total	115	100.0	100.0

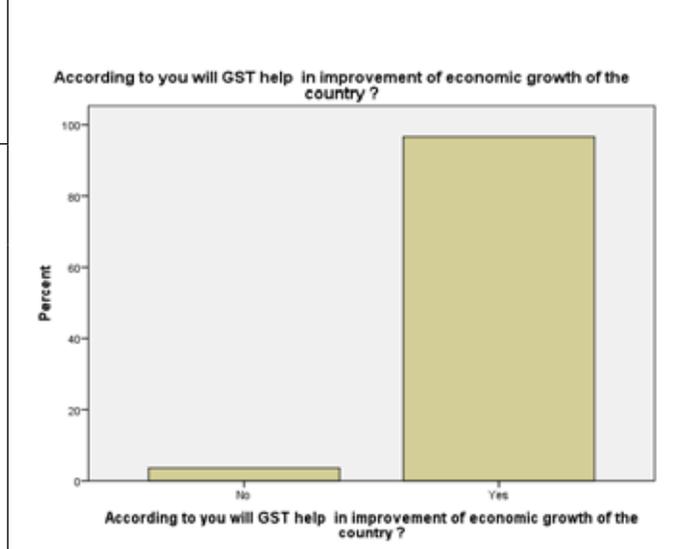


The bar chart displays the distribution of responses for the question 'Do you think that GST will help to reduce tax evasion?'. The y-axis represents the percentage, ranging from 0 to 80. The x-axis shows two categories: 'No' and 'Yes'. The 'No' bar is at approximately 24.3%, and the 'Yes' bar is at approximately 75.7%.

Out of 115 respondents, 75.7% respondent feels that GST will help to reduce tax evasion whereas 24.3% feels that it will not help to reduce tax evasion.

According to you will GST help in improvement of economic growth of the country?

	Frequency	Percent	Valid Per-cent
No	4	3.5	3.5
Yes	111	96.5	96.5
Total	115	100.0	100.0

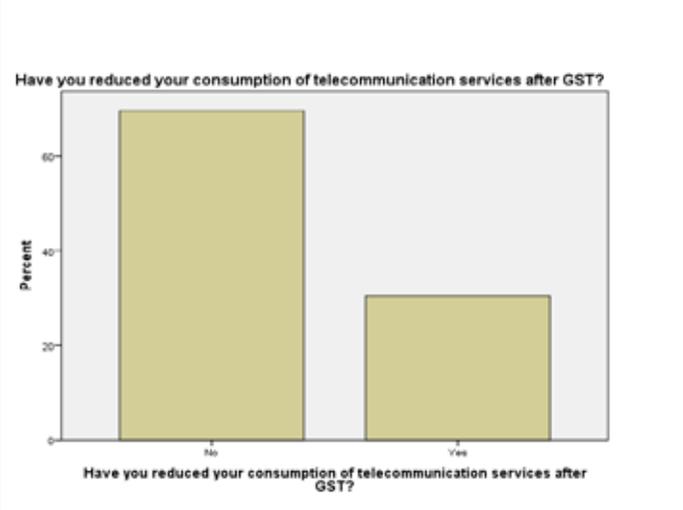


The bar chart displays the distribution of responses for the question 'According to you will GST help in improvement of economic growth of the country?'. The y-axis represents the percentage, ranging from 0 to 100. The x-axis shows two categories: 'No' and 'Yes'. The 'No' bar is very low, at approximately 3.5%, and the 'Yes' bar is at approximately 96.5%.

According to 96.5% respondent GST will help in improvement of economic growth of the country but 3.5% respondent feels that GST will not help in improvement of economic growth of the country.

Have you reduced your consumption of telecommunication services after GST?

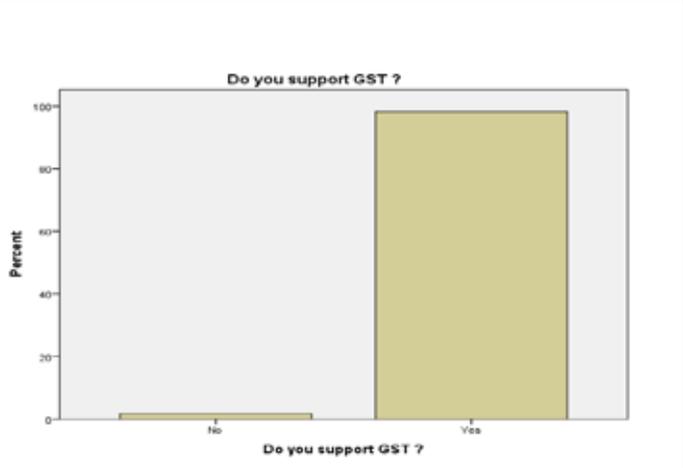
	Frequency	Percent	Valid Percent
No	80	69.6	69.6
Yes	35	30.4	30.4
Total	115	100.0	100.0



Out of total 115 respondents, 30.4% respondents have reduced their consumption of telecommunication services after GST whereas 69.6% respondents have not reduced their consumption of telecommunication services after GST.

Do you support GST?

	Frequency	Percent	Valid Percent
No	2	1.7	1.7
Yes	113	98.3	98.3
Total	115	100.0	100.0



From the above table, 98.3% respondents support GST whereas 1.7% respondents don't support GST out of total 115 respondents.

LIMITATIONS

1. This study is limited to Dahisar area of Mumbai only.
2. The statistical inferences have inherent limitations.
3. GST impact is studied only on telecommunication sector. Other sectors are not taken into consideration.

CONCLUSION

From the above study, the researcher can conclude that there is an impact of GST with reference to demographic factors on telecommunication services. It is seen that young generation is more aware about the GST (GOODS AND SERVICE TAX); also media plays an important

role in creating awareness among the individuals. From the analysis, the researcher find that there should be reduction in the tax rate from the current level from the responses received and also people think that GST will help in development of the country.

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Biometric System: Emerging technology in Financial Services

Unnati Shah

Aditya Institute of Management Research and Studies

Postgraduate in Diploma Management 2019-2020

Mumbai-400067

Email id- unnati.shah@aimsr.edu.in

Abstract

Today's world is all about changes, there are many rapid changes in different industries in past decades. So as financial services industries have changed significantly especially after 2009. The emergence of technology in financial services has enabled new reforms and strategic implementation with innovation which will meet to the expectation of consumers towards services provided by financial industry. Financial industry interface strong competition within the country and globally as well. It should reduce working man-hours, positive relationship with customers and improve profitability. The effect of financial technology on its services will differ from the adoption of technology according to the business models. Some of the current trend such as mobile banking, which was unable to deposit cheques, transfer fund, apply fund, mobile pay, mobile apps were immensely helpful to the customers. Blockchain was the most used technology in 2019 which helped to structure the data that represents financial entry or the record of transaction, fully digitally automated to ensure its authenticity and no one tampers with it. It stores the information in the data base conducted without intermediaries, it can be traced because of its transparency. Major financial services have started to evolve and implement various technologies and understand its importance in corporate world. Biometric system enables data security and safety with identity verification, which has better sensors and safeguard which is prevented from cybercrimes. The financial services industries are facing many challenges, and this emerging technology are going to be used to combat this complex challenge. It is an exploratory research with a view of broad concept and the data is collected from many reviews, literature and various sources of data. In this research paper there

is an analytical study of emerging technologies in financial services industry and their implementation which are going to boost the growth of financial services industry.

Key Wards Bio metric system, Fintech, Financial Services, Technology

Introduction

Since technologies are rapidly growing up, which shakes hands with variety of system? There tends to be innovation and up gradation of various emerging technologies in various industries irrespective different domains such as marketing, human resource management, financial analysis, operational management and information technology. From the last few years Fintech is also changing rapidly as per the requirements of faster moving world. The emerging technologies such as Robo automation, artificial intelligence, biometric data system, big data, open banking application program interface are going to change the financial services industry. Biometric system has contributed tremendously to boost the digital world. The authentication process is 100% secure and safe while using multiple methods. As we human being recognize body characteristics face, voice and gait of each other.

Biometric system uses these characteristics to identify or recognise the following individual. This system is divided into two groups- Physiological and Behavioural. This system is great combination of human tendencies and information technology. It is the smartest technology that uses information about an individual to have a brief identification of an individual. It broadly analyses a person and identify through their unique characteristics whether it is physical or behavioural. Biometric systems are fully automated and works with great authenticity. The

whole process of biometric is automated, it collects fingerprints and do take your photograph and keeps the record of digital signature for electronic capturing data.

Devices and computer have the data which unlocks automatically when they will have data which in terms provide complete information of that individual. There are different types and approaches of biometric system fingerprints, photo and video, voice recognition, physiological recognition digital signature, DNA scans etc. Also, they have many approaches such as physical movements, typing patterns, navigation movements, engagement towards technology as we all individual approach differently towards everything. Biometric system plays a vital role in terms of security of data, because of this benefit many companies would like to adopt or implement this system in their work life culture. A scanning device will request for bio password to identify data for security result.

A great combination of technology and human being that would exclusively focus on the identification of an individual that have become major priority and understanding in today's IT world that will boost the whole financial service industry.

Literature Review

Sr. No	Name of Article	Year	Author	Conclusion
1.	Fintech, the new era of financial services	2017	David Vagra	Basically, focuses on the appearance and innovation in financial technologies companies. The article conveys that how fintech is going to serve as an enabler of innovation and can have it positive impact for fast moving world.
2.	Fintech for Emerging markets	2018	Swetlana Saksonova	Observes growing competition between bank and fintech in emerging markets. It aims to evaluate comparison with the service provided and changes in future.
3.	Fintech Knowledge	2019	Eduardo Zied Milian	The aim was to investigate the concept of fintech and their future opportunities. Also, it deals with issues faced by financial industry and risk of financial loss involve in business environment.
4.	Impact of Fintech on Global Finance Industry	2016	Plilippon	To grasp such an approach and conveyance agreeable products and services, they may move towards a more communitarian approach and use of new fintech biological system to encourage the co-ordination of creative analysis.
5	Biometrics Verification	2011	Seemin Rubab	Evaluates a comparison between traditional method and the future of biometric in financial industry and finds the use in credit, ATMs, computers
6	Review on Multinational Biometrics	2017	S. Arnrarani	It studies the technological reformation and it substitute knowledge based and token-based reorganization system
7	A Survey on Biometrics Authentication	2019	Zhang Rui	It conveys about the features of biometric system and how to overcome the difficulty of password management and improve usability of authentication systems & attracts both academics and industry

8	Review on Biometrics Authentication Methods	2015	Mule Sandip	It reviews an authentication that serves first step towards security concern and significance response for secure identification.
9	Biometrics Security Technology the Future Now	2017	Vic Berger	Understanding biometrics benefits grows, adoption of technology is expected to grow exponentially

Research Methodology

Research methodology is crucial to identify, select the process, design and interpretation about the topic through various techniques. It helps to evaluate the study in detail about the topic which allows the reader to have a brief knowledge about the topic and it contains about the data collection and how it is analysed.

Research methodology is broadly classified into many different research designs such as descriptive, exploratory, conclusive, cross sectional & longitudinal research design. Where this design is constructed in such a way that it enables to identify the problem statement and to reconstruct in such a form or information in order to analyse and make important business or any other crucial decisions.

This research paper has implemented exploratory research design, which is conducted in such a way, which has not been studied clearly and has few objectives to explore about the topic. The data which is collected is accurate according to selection of subjects. Exploratory research helps to have in-depth vision about the topic by using secondary or primary data.

This study has collected data through secondary approach. Secondary data refers to data which has already collected by someone other than the researchers. The main reason for selecting secondary data is because this topic has wider approach nationally and globally. Secondary data helps the data collection process without any view of bias and any complexity. The main advantage to approach secondary data is because of the data flexibility and has expert point of view which is taken into consideration.

Earlier 50 articles were selected for literature review with a vision of having accurate study of different

author's, who have analysed and put forward their point of view towards topic. Out of which 10 articles has been selected which talks about future of Biometric system in financial service industry, it's contribution towards the innovation and long run vision to change the whole process of security and authentication of important data.

Objectives

1. To understand various emerging technologies in Fintech specifically refer to 'Biometric system'.
2. To study various challenges and opportunities faced by Biometric system in coming years.

Discussion and Interpretation

As per the above objectives, here in this paper there will discussion on challenges or issued faced by Biometric system and its future opportunities.

Challenges or Issue-

As Biometric system gives 100% assurance on its security and authentication which is its threshold competencies but there are many drawbacks which one should look upon. The major issue regarding this system is poor quality of fingerprint image which are cause by dirty skin, oil on sensory surface, dryness, dirt in scars, etc. which shifts the unique identity of data of any individual. Due to this negative consequence, has a major impact on the disposition target population for specific survey.

Also, one of the major consequences of this system is Hacking threat. Though it is said that it is 100% secure and safe but there are major chances of hacking of data and has certain risk which is attached to people and organization.

Also, biometrics are not private because it has a

connection with your physical parts and an individual's behaviour unlike password which are more private because you are the only one to know it.

There will be less human intervention so ultimately it will decrease employment in future as per the growth of new emerging technologies. As far as concern at sometimes it is very risky to have such technologies with utmost human intervention because there is no human intervention so it's very difficult to monitor how the technology works.

Opportunities-

One of the major opportunities is that there are many researchers who do an in-depth study of biometric system and approach towards interdisciplinary program.

Biometric system has its wide range of application, because of its security with constructive engagement

with Biometrics community. This system also applies on testing and evaluating research. Methods used by the biometric system are successful for the study of improvement and development in various fields.

Conclusion

As we looked up too many benefits and advantages of Biometric system in financial service industry and how it works. Though it is fully automated, it faces many challenges and issues. As this system has its positive as well as negative impacts. Some Biometric System recognises and track individual's information without their knowledge which is unethical. Although the use of Biometrics has boost socio cultural concerns but based on today's view of this system, it concerns no serious obstacle to proceedings with any program. Biometric System has its strengths and weakness. This system is still very expensive, and many companies or banking system are not able to adopt it.

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Progress and Prospects of Green Bonds in India

Simran Bajaj,

*PGDM , Aditya Institute of Management and Research,
Mumbai - 92*

Simran.bajaj@aims.edu.in

Meet Desai

meet.d@aims.edu.in

*PGDM , Aditya Institute of Management and Research,
Mumbai - 92*

ABSTRACT

GREEN BONDS are designed to raise funds for environment friendly projects. It is emerging as a significant financial instrument of financing low carbon economy along with growing sensitivity towards climate change. The government of India aims to significantly increase the number of installed renewable energy, therefore, to achieve the given target it is focusing on arranging and facilitating the much-needed capital investment. The research is an exploratory research using secondary data to find the information on performance of green bonds in India, also to give a larger picture the global market trend of green bonds based on which recommendations can be made to improve progress and prospects of green bonds in India. With rising environmental alarm across the globe Green finance has taken a rapid growth. Foreign markets have been actively participating in green bonds and India as a developing country is also trying to keep same pace. With help of this research we will try to analyse trend of issuance of green bonds in India by giving it a holistic view.

Keywords Green finance, Sustainability, Green projects, Bonds

INTRODUCTION

Green bonds are fixed income instrument whose proceeds are used to fund green projects. These are a different class of bonds that has received increasing attention over the past few years. It is the human's assert that have pushed Earth's biodiversity to greater extent because of which we are seeing various climatic activities happening around the world. So, now its human who has to take the corrective actions to overcome the challenge and counteract to it. These investment helps to overcome low carbon investment challenge.

The green projects that can be funded by these bonds include working towards:

- Renewable energy
- Energy efficiency
- Pollution control and prevention
- Terrestrial and aquatic biodiversity conservation
- Green buildings
- Wastewater management
- Clean transportation
- Climate change

World bank in 2007, issued the first official green bonds and from 2013 onwards corporates started participating. Last year, a total of \$159 billion of green bonds were issued around the globe which consisted of 285 green bonds from 122 issuers. There are tax benefits like tax exemptions and tax credits attached to income from these bonds which provides monetary advantage and make these bonds attractive for the investors. All such type of bonds must be verified by a third party like Climate Bond Standard Board which ensures that the proceeds will be used for the benefit of the environment.

There are number of benefits to the issuers as well as the investors investing in these bonds. It acts as a cover stone of responsible investing and thus builds up the image of the respective body who has issued it. Also, looking at the past trends of issuance of green bonds which have kept rising each year, the future of it is commendable by giving returns to the investor in the long run. Raising money through green bonds has low borrowing cost for the issuer and these benefits can be transferred to the investors in the form of dividends or returns. It often attracts a strong investor base resulting in oversubscription or pricing benefits for the issuer.

LITERATURE REVIEW

“Tomasz Bielski and Magdalena Mosionek Schweda (2018)” analysed the potential of green bonds to finance the sustainable projects and the best possible alternatives that the EU can resort to in order to explore the green bond market to the fullest. It explained the role of exchanges in promoting the growth of green bonds and when did they launch the green bonds. With the help of some real-life case studies it concluded that private sectors can play an essential role in order to take forward the green projects in EU. Moreover, non-financial corporate companies should be targeted to issue green bonds to fund that research and development activities in green technologies.

Wulandari Febia, Dorothea Schäfer, Andreas Stephan, Chen Suna (2018) analysed that The green bond market has been growing in recent years. This paper investigates the relationship between liquidity risk and yield spread for both green and conventional bonds. They tried to analyse it with help of two measures, first one is the LOT measure and the second is bid ask spread. Contrary to the initial expectation, the tested evidence indicated that green bonds are, on average, more liquid when compared to conventional bonds. The regression analysis resulted that both the methods i.e. LOT liquidity measure and the bid-ask measure are positively related to its yield spread. On the other hand, for the fixed-effects model, only the LOT measure turns out to be relevant for green bonds. We also found that the effect of LOT extinguishes over time, pointing out that, for green bonds, the impact of liquidity risk on yield spread has become negligible in most recent years.

Olaf Weber and Vasundhara Saravade (2019) focused on “brown-to-green” model with India’s biggest power utility, NTPC Ltd, when it issued the INR20 billion (US\$369 million) green bond in August 2016 and got its certification from the Climate Bonds Initiative. This certification was given because the fossil fuel company was increasing the existing strength of its “brown” finance to channelize the fund for the expansion of clean energy generation. Similar instances of other brown-to-green issuers achieved greater market support than purely brown issuers looking to improve energy efficiency through baseline changes (Brown 2017). This approach has some level of consensus among various investors around

the world. She further puts light on encouraging investments in green energy instead of fossil fuels. also, green bond market provides an opportunity to diversify investment portfolios and hedge risks associated with climate change. Advantages for the investors by reducing their exposure to climate related or other environment related financial risks and certified and transparent mode of investment in green bonds can be a useful addition to their existing portfolio for all type of investors.

Tanguy Claquin (2019) has a say that Initially the green bonds market was dominated by major economies and international public institutions such as the European Investment Bank and the World Bank but thereafter little by little private sector came into the picture by investing in green bonds. This steady growth of investments has come from broad sources such as institutional, private, public, and also from socially responsible investors all over the world. ‘Green bonds can help boost flows of private capital originating in mature markets and used to fund green projects in developing countries. It also analysed the data published by the United Nations Framework Convention on Climate Change that developing countries require an average investment of USD 28 and USD 67 billion per annum till 2030. Emerging markets are also climbing with respect to Indian market as seeing the performance of green bonds issuance have already taken pace, for example by Yes Bank and EXIM Bank of India. Green bonds are furthermore excellent tools for promoting sustainable development to market players

Carolyn. M, James N. Levitt, Linda J. Bilmes (2016) examines the current and potential future use of green bonds for financing sustainable land use and conservation projects around the world. The paper draws results from first-hand information by interviewing land conservation practitioners, bond issuers, investors, and financial analysts. The paper tries to analyse the key areas given by the community of experts and lays out a series of steps that will be required before green bonds can develop into a significant and reliable tool in the conservation finance toolkit. They also tried to give certain measures after analysing the scenario that Land conservation organizations and issuers should generate success stories and try building market momentum for this

type of financing approach. So that they can help to build a meaningful new capital market that will be able to provide financial support for land conservation initiatives around the world.

Mattia peri (2019) focused on the emerging trend of green bonds in the Market and a global transition from non-green bond investment to low carbon investment to meet the Paris agreement goal. Along with the motive of focusing on the importance the study also analyses the convenience of issuing the green bond by adopting the measure of propensity score marketing approach. This study covers the history of issuance in European market. So, the study is restricted to the analysis of green bond market in Europe. 121 green bond issues have been studied between 2013 to 2017 and concluded that green bonds are more convenient than the non-green bonds. This establishes a larger advantage for the corporate issuers in the secondary market. Conclusion stated that green bonds play major role in transforming economy to green economy.

Dirk heine, willisemeller, marianamazucato, erin hayed, siavashradpour (2018) puts light on the transition towards low carbon emission by mixing policies of green bonds and carbon pricing with understanding the importance of nature, environment and climate changes that countries are facing today. It also talks about the sustainability by sharing the burden with future generations. So, the studying the effects of combination of both the policies via three phase model and numerical problem solution which resulted into finite solutions and phase changes giving final conclusion that green bonds perform better when combined with carbon pricing model.

Olivier David Zerbib(2018) Primary focus of this article is find the effect of pro-environmental effects especially non-pecuniary motives on the bond market prices. For this he applied matching method followed by two step regression procedure to estimate yield differential between green bond and conventional bond. The result showed small negative premium with yield of green bond being slightly lower than conventional bond. Thus, results emphasised on the low impact of pro-environmental preferences on bond prices

RESEARCH METHODOLOGY

This is an exploratory research completely based on secondary data. The data is extracted from various online sources like World Bank, Climate Bonds, SEBI, International Finance Corporation, International Monetary Fund, Economic Times etc. The data collected from the above sources are in the form of articles and reports which are authentic and reliable as these are published by government bodies. Also, database like EbscoHost and J-Gate were referred. These information in form of articles has been condensed by analysing the current scenario and comparing it with the past trends. Diagrammatic aid has been used for better understanding.

Research Objectives

- Analyse the current global scenario for green bonds in India
- Analyse the evolution & progress of green bonds in India
- Holistic view of green bonds in association with various industries and sectors
- Pipeline projects under green bonds in India

Interpretation and Discussion

Current Global Scenario

In 2019 Q1, a total of USD47.9 billion of green bonds were issued with 23% of volume was from debut issuer. There have been 14 new market entrants from 17 countries and 24 new projects were committed across 6 sectors which will be funded by these bonds.

United States of America

The first corporate green bond in USA was issued by The Bank of America totalling \$4.35 bn in 2013 and this amount was channelized for renewable energy projects. The green bond market has grown substantially since its introduction and so far, United States of America has been one of the largest contributors for green finance through green bonds. Prominent green bond issuances have come from across the states and are being used to finance a diverse range of projects. In 2018, out of 293 issues of green bonds 212 were from United States. It was the largest issuer at that point of time. Massachusetts was the highest contributor to green bonds in United

States.

In 2017 USA was 4th in number in terms of issuance of \$2.8 bn

On October 2019, PepsiCo- the American multinational company raised \$1 bn through green bonds to fund series of sustainable agendas like agriculture, packaging, climate, along with its eight millennium development goals. Focus is to reduce virgin plastic content which is used in packaging and other areas by 35% and replenish entire water consumed in manufacturing by 2025. Bonds were also issue in the category of sub national green bonds like the issuance of “the district of Colombia water and sewer authority”

China

China has also been a significant contribution towards the green bonds by constantly being in top five contributors since its first issuance. China wants to change its image from being biggest source of environment polluter, to be leader in global warming mitigator. China issued Yuan 143.9 billion (USD 21.8 billion). In first quarter as per semi-annual report on China green bond market. In China, financial institutions are the largest contributor of green bond issuance with 41% of overall issuance. Among the funds raised low carbon transport sector absorbed 37% of investment funds and then followed by renewable energy and water conservation. China established on an average 12% yearly growth to cement its position in top three issuers every year.

Brazil

In April 2019, AES Tiete issued the first Certified Green Bonds for the purpose of financing the acquisition of 8 solar farms. The total amount issued was \$208 million having a maturity of 10 years. The pre issuance verification was done by VigeoEiris. One of the unique cases globally was of Suzano Pulp and Paper SA, world’s second largest eucalyptus pulp producer. The rating of the bond was BB+ with a coupon rate of 5.75%. the maturity of this bond was 10 years. This was the first forestry based green bonds where the proceeds were used to trade carbon credits arising from existing forests. This was an outstanding leadership and received a certification from Forest Stewardship Council

(FSC). As a part of the Paris Agreement, Brazil has set a target to reduce the greenhouse gases (GHG) by 37% by 2025 and by 43% by 2030.

There has been a transformation from brown to green and to support this transformation green bonds has played a vital role. In Brazil, there are large number of green finance opportunities. The green finance is growing at a rapid pace from making it a provision to report ESC in 2012 to signing a Memorandum of Understanding for evaluation of potential issuance of green bonds. In 2016, to promote the issuance of green bonds “Green Bond Guidelines” were published which had brought a major change. Also, making it easy for the private companies to raise finance for their green projects through these bonds.

Australia

One of the characteristics of Australia is small populated continent with high GDP per capita income. There has been a boost in infrastructure construction. They are moving from high fossil fuel powered transport to public transport. The infrastructure projects which are in progress, almost 50% of these projects meet the criteria of “green projects” and therefore can be funded by green bonds. In Australia, half of the bonds were issued by International Development Banks and half were issued by Domestic Commercial Banks till 2015. The top few banks in Australia are playing a vital role in issuance of green bonds and helping small issuers. It is planning to reduce the Green House Gases by 26%-28% by 2030. Here, Green bonds are issued in a diverse range from 4 biggest Australian banks, 2 State governments, a commercial property, a university and number of green ABS bonds.

In May 2016 Westpac, commercial bank issued an amount of AUD 500 million CBI certified green bonds and the proceeds were used to build low carbon buildings. In April 2017, a government entity “Queensland Treasury Corporation” issued AUD 750 million of green bonds with a maturity of 7 years for a project on Solar energy and low carbon transportation. In May 2018, Flexi ABS Trust 2018-1 issued AUD 81.3 million of green bonds for the Rooftop Solar PV and Solar Hot

Water Loans.

Number of opportunities in Australia for the growth of green bond market. The Light Rail Transit System (LRTS) and Bus Rapid Transit System (BRTS) which is a mode of low carbon transport system is being developed in major cities. There are more than 2000 green star rated projects in Australia which reduce GHG emission by 62% and many more are in progress. Greening hospitals and public buildings are excellent opportunities for green bond market.

NEW ZEALAND

New Zealand has the potential to become one of the global leaders in Green Infrastructure as a well-defined investment opportunity can be planned taking into consideration the economic conditions and the government. The urban based population in New Zealand is almost 90%. The government here has a focus on developing the roads, rail and water infrastructure and to reduce greenhouse gases emissions by 30% by 2030. The traditional ways of funding the infrastructure requirement had ruled out and the government was seeking for innovative funding ways. The green investment fund was therefore launched. The new approach was to bring in private investments as well by demonstrating the benefits of investing in green projects.

In August 2017 Contact Energy Limited, a non-financial corporate raised NZD1.88 billion with maturity of multiple tenures for the purpose of financing geothermal assets. On June 2018 Auckland Council raised NZD200 million through green bonds for a maturity of 5 years to refinance the existing debt which is used to purchase electric trains. It is planning to increase renewable energy generation to ninety percent by 2025 by investing in wind and solar energy generation projects and geothermal projects. Projects on sustainable water management is also under progress.

India

Yes Bank in 2015 issued the first green bonds in India. Since then the Indian Green Bond market has seen tremendous growth. Also, it was highlighted in an economic survey 2020 that India

is the second largest emerging green bond market. These instruments are becoming popular because the investors are looking for ways to channelize their funds in green projects.

India's aspiration to become 5 trillion economy till year 2025 is very crucial with its steady growth in gross domestic product (GDP) year after year. But, sailing in the same boat India also faces various climatic disasters such as flash floods, droughts, heat waves etc... which needs to be mitigated. Apart from such climatic disasters India's natural resources are also getting depleted due to monstrous activities carried out by people. New Delhi which is the capital of India comes under the most polluted capital city in the world with an average death of 20000 to 30000 per annum.

India's emission from fossil fuel (2017) was lowest among the major economies i.e 1.83MT with other economies standing as follows china at 7.22MT, Europe at 6.79MT and biggest emissions recorded in USA at 15.74MT. despite of the lowest emission when compared to the major economies India made a significant commitments adhering to Paris agreement in its intended nationally determined contribution which was submitted to (UNFCCC) united nations framework convention on climate change. India pledged to lower its emission intensity of its GDP by 33-35 percent over 2005 levels by 2030. Government of India in its recent budget released 3100 crores for green mission India out of which 460 crores were specifically for pollution control, 4400 crores for ministry of environment, forest and climate change.

In first half of 2019 two of the major issuers of green bonds were ADANI GREEN and GREENCO with USD\$500 million and USD\$950 million respectively.

All the regions except Latin America and the Caribbean disbursed more than the committed amount of funds. But East Asia and Pacific was the most accurate in terms of their commitments and disbursements and disbursed the highest amongst all the regions.

PROSPECT FOR GREEN BOND IN INDIA:

• RENEWABLE ENERGY

India renewable energy sector is the fourth towards the transition of clean energy. The installed renewable energy production capacity has increased at a rapid pace over the years. The government of India has set a target to reach a capacity of 175GW of renewable energy by 2022 which will be a combination of wind energy as well as solar energy. In October 2019, installed renewable energy capacity was 83.37GW and the bifurcation is shown below:

Installed renewable energy capacity (2019 Q3)	
SOLAR	31.7GW
WIND	37GW
BIOMASS	9.80GW
HYDROPOWER	4.6GW

This sector is in need of financing and hence can be a good scope through green bond financing. By 2040, the target is to generate 49% of the energy through renewable source.

The government of India has started promoting heavily the use of Electric Vehicle and many automobile companies has already started working towards these vehicles. The Goods and Service taxes which were imposed on electric vehicles earlier was also reduced from 12 percent to 5 percent and for loans taken to buy EVs there will be a tax deduction on the interest paid. All these parameters make EVs an attractive investment. Also, NITI Aayog has promoted the sale of EVs by stating that only this environment friendly vehicle should run by 2025 (two wheelers and three wheelers below 150 CC). This proves that the demand for EVs will be increase which will lead to increase in the demand for charging infrastructure and stations. These projects also come under the category of green. Therefore, automobile companies can raise funds for these projects through green bonds.

• WATER INFRASTRUCTURE

Building an efficient water infrastructure is a major concern in India. According to reports of Bank Of America (2020), India may require a capital of Rs18.5 trillion over a period of 5-15 years. The rising scarcity

of water in the country must be solved and the required capacity must be built. The government of India is constantly working towards it. It come up with a Nal Se Jal Yojana which aims to provide piped water to rural homes. Projects like cleaning (rejuvenation) of Ganga, interlinking rivers and the 13 large projects on anvil require huge capital. Therefore, a framework can be built wherein green bonds can be used to raise capital. For instance: the first desalination plant in ODHISA (Pradip) will be built and commissioned by 2021 and it will have a capacity of 10 million litres per day . The investment which is required is 116 crores. Projects like these if properly structured can be funded by green bonds.

• DISASTER MANAGEMENT

Disasters come with lot of cost. India is prone to floods, drought, cyclones etc. Aftermath of any disaster shows the true damage with a large amount of capital required to restructure it. The overall damage due to Fani cyclone in India and Bangladesh combined was approximately \$8.1 billion out of which major portion of the losses were attributed to Odisha. According to reports, average cost of floods in India is \$7.4 billion every year. Also, the effect of climate change has resulted in unexpected changes in the weather and melting of glaciers. Therefore, it is necessary to curb and reduce the effect of disasters with an efficient rebuilt strategy. The investments required to build these projects come under Climate Change Adaption and thus can be funded by issuance of green bonds.

• AGRICULTURE

Agriculture is the primary sector of our country. Earlier, the contribution was more than half in the GDP but with the advancements in other sectors and the increasing urbanisation has reduced the contribution of agriculture. Since, 2015-16 the contribution has decreased at 14.4 percent in gross value added. But in this modern era, with the increase in health-conscious people the demand for organic food is shooting up. Organic farming, drip irrigation, reuse of treated wastewater, multi crop cultivation etc comes under sustainable use of land and water (green projects). With the technologies coming in and the mechanisation of agriculture some capital-intensive techniques can be linked with green bonds in order to raise funds easily.

- **FORESTRY**

The total forest cover in India is 21.67%. The aim is to achieve 33 percent of forest cover and this can be done by planned forestry. Forest bond of worth \$150 million with a credit rating of AAA was issued in Kenya to raise funds for forest development. Similarly, the Indian Forestry Sector can raise enough funds through green bonds. Securitisation can be enabled through a common corpus like National CSR fund.

- **COASTAL PRESERVATION**

India is surrounded by water on three sides. India's coastline is extended for around 7500 km which makes it essential to preserve our coastal region. The increasing sea level is a significant threat to these regions. Seawater inundations must be prevented, and it can be done in two ways i.e. either beach nourishment or build hard infrastructure and both alternatives require huge amount of money. Long term green bonds can provide solution to the huge capital requirement and assist the projects like Integrated Coastal Zone Management Project.

SOME PIPELINE PROJECTS IN INDIA FUNDED BY GREEN BONDS

Kerala industrial Infrastructure Fund Board is raising \$250mn through green bonds. The proceeds can be used to promote non-conventional energy sources in the southern states of the country.

The international finance corporation IFC will fund a solar project in Bhadla Rajasthan and these funds will be raised by issuing green bonds. The name of the project is Clean Solar Power and the amount committed is \$43.39 million. Through this project the expected annual reduction in Green House Gases will be 530594 tCO₂eq/year. The annual energy produced will be 604322 MWh.

DCM Sugar project for the expansion of sugar plant is also funded by International Finance Corporation. The annual energy produced will be 127000 MWh and the

total investment allotted in \$23.09 million. The aim is to promote and build sustainable agriculture practices in backward and low-income states on India. This project will not only expand the sugar plant but also reduce the wastewater generated. Another impact of this project is that it will generate biofuel of 63000000 per annum. The expected reduction of Green House Gases (GHG) will be 220764 tCO₂eq/year. This project comes under the biomass sector of Green Bond Climate Sector.

In order to promote Green Financing and to build an inhouse capacity of Climate Financing Business the RBL bank has tied up with IFC. A loan of \$50 million will be given to the bank. The amount received will be invested in green projects to promote sustainability through demonstration and replication channels. The average expected reduction in GHG through this project will be 29518 tCO₂eq/year. India has a huge requirement for financing climate smart projects, therefore green financing techniques can support the growth of this market.

Conclusion

From the research we conducted we came to know that green bond as a financial instrument has a great investment opportunity in India. Turning the pages of past, we analysed that India is among the top 10 countries actively participating in the green bond investing market and fulfilling the commitments towards climate change. Also, government of India is keen towards climate change by taking various steps adhering to Paris agreement on climate change. With rising awareness of need for climate change along with government initiatives has affected the corporates and private players to act parallelly. Recognising the need of climate actions, amount of green finance has been upscaling in India since its first issuance.

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Ever Expanding Potential Application of 360-Degree Video

Abhishek.R. Shah,

Learner, M.M.S

Aditya Institute of Management Studies and Research, Mumbai

abhishekshah321@gmail.com

ABSTRACT 360-degree video can be the upcoming thing in the future that everybody will watch on regular basis. Very few people know what a 360-degree video is. Even many young teenagers who are updated with the latest technology does not know what is a 360-degree video. 360-degree videos, also known as immersive videos or spherical videos are video recordings where a view in every direction is recorded at the same time, shot using an omnidirectional camera or a collection of cameras. In fact, there are special camera are there that are available online and that camera is designed epically to shoot 360-degree video. Maybe there is a possibility in future that 360-degree video can be used by almost all individual, like how video recording is used by every individual nowadays.

KEYWORDS 360-degree video, viewers and business enterprise

INTRODUCTION

Before a decade ago people were not very much depended on the video, but nowadays people are watching videos a lot. Some people are depended on the video. Some customer would not buy the product or services before watching the Product or service video. Almost each and every type of video is uploaded on the internet. As video are in high demand in the present. In the upcoming years 360-degree video can be used by many individual on daily basis. There are also many benefits of watching 360-degree video it can be useful to those people who want to watch travel related video. As a 360-degree video will give the real 3D feeling of that place to the user.

There are many individuals who do not know what is a 360-degree video is and don't how to watch that video on phone or PC. Also 360-degree video camera is expensive and cannot be affordable for all the

individual nor it cannot be installed on a mobile. Even there are many people who do not know how to shoot a 360-degree video.

If 360-degree video will become common in future than the degree video camera might become cheaper in the future as the 360-degree camera company will face a lot of competition.

360-degree video might become popular in future. It is especially helpful for those viewers who want to watch travel related video. It might not be enjoyable for those viewers who want to watch movies or TV series.

There are many statics that has proved that the 360-degree video demands are increasing and also sometimes people would prefer to watch 360-degree video over the normal video and also the company sales have increased.

360-degree video is also one of the good sources of marketing campaign. 360-degree videos is one of the emerging source of marketing. Some of the companied have used 360-degree videos for their marketing campaign and that has also been beneficial to them. Sales of the companies who have used demonstrated their product or service through 360-degree video had increased.

Earlier some of the companies had started using 360-degree videos for the first time, slowly it became popular and now almost all the companies are using video for their marketing campaign. There are chances that 360-degree video might become the common source of marketing in the future.

360-degree video are available on various social media sites such as YouTube, Facebook, Twitter etc. The viewers of 360-degree video are increasing on social media. It is also estimated 360-degree video

viewer will increase in the future.

According to Statistics 360-degree video will be dominated by user-generated content as the videos require little editing. Live streaming on social media has been a trend in 2016 as Facebook has popularized live streaming for users, news outlets, and brands. Journalism will also benefit from live 360-degree video streaming as it has from live social media stream - reaching a large live audience.

There is great potential in the diversity of 360-degree video content and user-generated is one level that needs to be optimized for content to grow. The addition of 360-degree video capabilities will ease the transition as Facebook and Twitter already have a large audience of users who understand the social platform.



(Source- <https://greenlightinsights.com/social-media-grows-360-degree-video/>)

OBJECTIVES

- To know the application of 360-degree video.
- To know the advantages of 360-degree video.
- To know how 360-degree videos can be beneficial for the business enterprise.

THEORETICAL FRAMEWORK

1. Potential Applications of 360-degree video

360-degree videos can be used for many different purposes. One can also shoot the live 360-degree video. Some types of videos like Travelling, Adventure, driving etc. gives different experience to its viewers and also it will be interesting for them to watch it. The Different Application of 360-degree videos are:

A. Sports:

Fully immersive video will offer stunning opportunity for telecommunication companies, triple-play operators, broadcasters, sports & events rights holders, and anyone providing ultra-high bandwidth to the home.

With the EYE™ VR Camera, one can stream live ultra-high quality, 360-degree video, direct to viewer's VR headsets. For your viewers it is like teleporting into the stadium.

B. Events:

For artists, venues and service providers, the opportunities with live 360 video are immense. capturing a major concert, festival or DJ performance from the perspective of half-a-dozen ultra-high-quality virtual reality cameras. Millions of pay-per-view VR viewers around the globe can virtually attend the gig. fan base will be able to choose from their favorite viewpoint to watch the performance, join the act on stage, or stand next to the DJ.

C. Filmmaking:

filmmakers like Chris Milk, Felix and Paul, and legends like Steven Spielberg, are already exploring the potential that 360-degree videos offers for cinematic filmmaking.

With the world's first 360-degree movies, an entirely new immersive cinematic experiences are possible. It's a medium that blocks out all else and immerses your viewer in your creation. In homes across the world, people and families are already on their devices all the time.

D. Travelling Videos:

experiences in 360-degree videos will be a huge part of the market. From sitting in one corner at home people can view the world's best beaches, lakes, mountains etc. One can work from home and transport himself to a beach in Barbados, a cafe in Paris, a park in the countryside, or anywhere you'd like to relax or experience. Viewer will be able to pick a place, and fly there.

Different types of travelling videos like walking, driving, scuba diving etc. 360-degree videos can be uploaded and also viewer can watch and enjoy. A viewer from India can enjoy walking in Manhattan, one from landlocked country can enjoy scuba diving from home.

2. Advantages of 360-degree video

The future of digital media consumption is poised to become all about immersion, and 360-degree video is the gateway drug to a fully interactive virtual experience. The advantages of 360-degree videos are:

A. Good User Experience:

360-degree video will provide better experience to the user as one can view the video from any angle. It will also be interesting for the viewers to watch video in different and new forms. A viewer also be able to focus on some selected parts if he wants to.

B. Leadership skills can be increased:

This technology is still fresh. Get in while it's hot and one can establish himself as a digital thought leader by incorporating innovative content. The level of difficulty varies with the type of experience one aim to portray, though. Interactive Facebook panoramas are simple to create with an iPhone, but a 360-degree video requires special equipment and editing software. Either way, the technology is new enough that folks will be impressive.

C. Accessibility:

Though the technology is new, there is often no need to access special tools to create such content. Some people are not aware about the 360-degree video, but one easily get the knowledge from the google and can understand how to operate it.

D. It is the rising media Revolution:

Not only are VR-Ready 360-degree videos becoming a mainstream medium, but it is also proving itself to be a revolutionary marketing tool. History has shown that the people who aren't able to cope with the technologies of the future are left out and disconnected from the mainstream world. May it be your personal use or your business, becoming a part of a growings platform will get you unlimited benefits and we have seen how rapidly the 360-degree VR-Ready video platform is growing.

E. It's the most exciting content presentation medium today:

Another reason why this is the best time to get into 360-degree videos is that this is the most exciting platform to present any content today. Several million individuals are active on some form of virtual reality headset today and since it is a relatively new platform, there simply isn't enough content there. Not only that, but a number of content categories are completely

left unattended due to lack of VR content providers. Getting into 360-degree video content production at this stage could unlock the way to an almost-untapped market.

3. 360-degree videos are beneficial for the business enterprises

360-degree videos are on the fringe of mainstream consumer awareness. Entering a market early can ensure your success as an authority in the industry.

A. Gateway to new marketing platform:

Companies will always try to find out new marketing platform for them so that they can become more popular and can sell more products. 70% of marketers who have used 360 videos say it has increased engagement for them. If a company publishes 360-degree videos on platforms like YouTube and Facebook you are entering another stream of attention.

Utilizing 360-degree content on all platforms that accept it will almost assure more eyes on your posts. Instead of writing blog posts, and creating infographics, customer will more like 360-degree videos.

B. It can create unlimited possibility for viewers:

Instead of taking 15 photos one can take 1360 photo to encapsulate all the information that they want to show. Nothing compares a video to a 360 video that shows everything in the scene everywhere. More information means more empathy and consumer awareness. Instead of looking at a picture or video one can directly watch 360-degree video. Hundreds of different industries can use the unique media form of immersion.

C. Consumer Loyalty:

When companies make a noticeable effort to post new forms of media and content, they beg for consumers' attention; on that note, putting in a little bit of effort goes in a long way.

Posting new content lets the company audience know that the company is always innovating. Always innovating means the company is going to be there and will not disappear tomorrow. It's a good indicator of a spectacular brand that has my attention.

New research suggests investing in 360-degree media

will pay off in brand equity and increase purchases over 2-3 years.

Research by Greenlight VR surveyed over 1,300 adults, among whom 71 percent feel that VR makes brands seem "forward-thinking and modern", and 53 percent said they'd be more likely to purchase from a brand that uses VR than from one that doesn't.



(Source-veer.tv/blog/5-benefits-vr-360-degree-photos-videos-personal-business/)

D. It can be worthy of an Investment:

According to Greenlight VR Research 360-degree videos Customer are growing every year. Therefore, it can be beneficial for the business owners to invest in 360-Degree Video as it can be commonly used in future.

E. Customer Engagement:

360-degree video has three times more conversion rates, 30% higher repeated view rates and also it has increased 70-300% customer engagement.

Google ran an advertising campaign where they pinned a normal video to a 360 virtual reality video, and found that 360 videos motivate viewers to watch more and interact.

Google implemented a new metric called the interaction rate, which measures if users tilt, scroll their phones around was higher than the view-through rates for the 60-second 360 ad. In conclusion, the 360 ad drove engagement via interactions, even if people

didn't watch 30 seconds or more!

Google's 360 ad drove 41% more earned actions than the standard ad. Messaging apps like WhatsApp and iOS messenger listed among the traffic sources for the 360 version—but not for the normal version.

The full-length 360 video had a 46% higher view count at the end of our experiment than the standard full-length piece. As a result, the 360 ads were a more efficient buy since its cost-per-view was lower when organic and paid views were combined.

CONCLUSION

As 360-degree videos are one of the emerging things in the market. There are possibilities that 360-degree

video will become regular in future. Some viewers like those who like traveling, adventure etc. will enjoy 360-degree videos and might use it regularly. Therefore, it becomes important for business to invest in 360-degree videos, as many statistics have also proved that companies those who use 360-degree videos are able to sell more product. And also, on YouTube the retention of 360-degree advertisement is 63% more than the normal advertisement where majority of the customer skips it. It becomes important for the company to understand the need of new technology and adapt to new technology for their survival. Also, it will create the company brand name in the market and there are possibilities that they might be able to generate more leads as most of the companies have generated more leads through 360-degree video.

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Will Mayonnaise Ever Overtake Tomato Ketchup & Sauce in India?

Gaureesh Desai & Asmita Deshmukhe

Learner, MMS

Aditya Institute of Management Studies and Research, Mumbai

gaureesh.desai@aims.edu.in

asmita.deshmukhe@aims.edu.in

ABSTRACT

Ketchup in India has enjoyed a monopoly for quite a span of time as an only dip or dressing for any fast food or even Indian snacks like samosa, pakoda and many more. And now with the entry of Mayo which is trying to make a place of its own in Indian market and has been quite successful, with European conglomerate like Dr Oetker accruing Delhi based Fun Foods as one of its step to enter the Indian fast food market. In Western countries Mayo has won its battle against Tomato ketchup & sauce, US mayonnaise market counts \$2 billion and ketchup is just \$800 and so is the scenario all over the world. And now they want to tap Indian subcontinent where Indian chutney and pickles are already making it tough for tomato ketchup and sauce how will mayonnaise overcome such problem and competition. Few steps have already been taken with introducing Veg Mayo for Indian vegetarian and Mayo-chup a combination of Mayo and ketchup.

KEYWORD Ketchup, Indian Market, Sauce, Mayonnaise, Dr. Oetker

INTRODUCTION

In recent times we have seen an increase in consumption of fast foods and quick making lunch and dinners with fast moving lifestyle, which results in increase in condiments, dressing, sauces, and many more. Today's generation have increased interest towards foreign dishes and taste, which have created some void for Mayonnaise and other condiments. Mayo has been in the Indian market since a decade and has slowly becoming as daily dipping, sauce and spread for everyone. Earlier whoever used consumes burger, sandwich, rolls, pizza, or any fast foods from Mcd, KFC and Subway

they were not aware that mayonnaise is used in it. Many used to believe that it's any other spread but since past few years many companies came up with mayonnaise sachet or jar or any squeeze bottle which anyone can use in their daily routine and can make delicious recipes out of it.

Since many years' ketchup is trying to build its market share in India and trying to overtake the Indian chutneys and pickle as condiment. And now with entry of mayo its going to be tough for ketchup as well for newbies like mustard sauce and spreads. Unlike ketchup, mayo has many serving types like a dip, spreads, binding agent, and as a sauce in any dish. Whereas ketchup has limited scope. But many moms and children do find ketchup a healthier option compared to mayo. Again, as India being a more vegetarian centric country where some who eat non veg only few days in week due to the religious belief, So Indian companies came up with eggless mayo or veg mayo with the help of milk protein. Now with latest trends, question is can mayo takeover a year-old famous ketchup in India as experts says that it can only grow if the fast foods consumption is increased as it is a dependent by-product.

STATEMENT OF THE PROBLEM

To understand the Condiment market of India and how can mayonnaise grow in front of the ketchup industry

SCOPE OF THE STUDY

Secondary data research based on the newspaper article, magazines, and research papers within India. Facts and figures are based on annual year 2015 to 2020.

OBJECTIVES OF THE STUDY

To find how Mayo can become a household name in India.

To find whether Mayo will ever overtake Ketchup in India.

RESEARCH METHODOLOGY

The data in the research is based on secondary research. The data is collected from various research papers, websites, and magazines.

REVIEW OF LITERATURE

Mayonnaise is a 100-year-old product and considered to be the world's favorite sauces. Which majorly consist of vinegar, egg yolk, and vegetable oil. It is also considered that it has long product life after the opening of the product according to (Morley, 2015). Different flavors in the mayo are derived mostly by adding mustard to the mixture, which contains isothiocyanates and are stabilized by adding citric acid. By understanding the emulsions, manufactures of mayo has been able to make product long term and variety of flavors which are mentioned in the paper titled "Trends in Food Science and Technology" (Depree & Savage, 2001). Ketchup is a big house condiment all around the world which originates from China then Malaysia, Indonesia and then to British sailors. Ketchup which was made from unripe tomatoes is now made from ripe ones as due to changes laws and its natural preservative pectin makes the condiment thicker (Filippone Peggy, 2019). Tomato ketchup is called tomato sauce in UK and in Commonwealth countries, but in North America, Canada it would be a cooking sauce and not a condiment says (Green Denzi, 2002).

In an article by Economic Times, covering a short interview with CEO of Dr. Oetker India division Oliver Mirza. Dr. Oetker an European conglomerate acquired Delhi Based Fun Foods in December 2008. which jumped from just 28 crore revenue in 2008 to 120 crore revenue in 2015. As growing lifestyle and variety in condiments mayonnaise has turned out to be the fast-growing table sauce a value growth of

23% in 2015 in India. Whereas its just 13% in 2015 in India for tomato ketchup. If we see US the tables are quite opposite to what are in India says Mirza, as Mayonnaise is \$2 billion whereas ketchup is only \$800 million confirms mirza. He thinks same story will turned out in India as well. He also adds that in India they have launched all vegetarian mayonnaise and only one variant of egg mayo, even all over the world mayo has 80% of fats and cholesterol but only in India its just 20%. Oliver Mira CEO of Dr. Oetker India says that its important to focus India with its local needs and taste as its more soft & creamer in India compared to other countries and according to him Dr. Oetker is aiming to become a 1000 crore valued company by 2020 (Singh, 2016), (*Mayonnaise Is the New Ketchup in India. Here's Why* | *Business Insider India*, n.d.).

Chipotle Southwest salad dressing and ranch salad dressing has shown the highest CAGR compared to all other salad dressing in the year 2011-2017. And in the case of mayo, Garlic and mint mayo together has a market share of 8% in the following year 2016-2017 and are forecasted to continue highest sales in future, mentioned in report (*India Mayonnaise & Salad Dressing Market Outlook, 2023*, n.d.).

According to this report (*Market Overview for Mayonnaise & Salad Dressing in India (2018-2023): Mayo-chup - A Real New Sauce or Just a Modified Version of Fry Sauce by Heinz*, n.d.) India's overall market in mayonnaise condiment is projected to grow more than INR 750 crore in the year 2022-23. Because of increasing demand in international foods, various variety, and growing demand of fast foods and many more aspects has helped to grow the market by CAGR more than 20% in the period 2011-2017.

In the article (*How Mayonnaise Became a Household Name - Brunch Columns - Hindustan Times*, n.d.) mid 90's, Indian companies named Cremica and Fun Foods (now sold to Dr. Oetker) tried and experimented with milk protein to make an eggless mayo. And once they succeeded, they

started selling to Indian restaurants and Fast food chains. Akshay Bector of Cremica says that mayo would not have been a big name without eggless mayo in India by making a stable eggless mayo. According to Viraj Bhal of Veeba major reason for the mayo boom in India is due to sandwich exposure to Indian consumers. As a result, various fast food menus have turned out with sandwich, kids take sandwich to school more compared to roti sabji.

In an interview based article with Oliver Mirza (CEO of Dr.Oetker India division) by (Zachariah, n.d.) ketchup is an INR 12bn food category and is projected to grow up to INR 20bn in next 10 years and so mayo also want to be in that category, as mayo has more variants, use abilities like dip, spread or even as binding agent which can replace any other condiment. Mirza explains why mayo was not the go to condiment earlier, as India majorly being an vegetarian consumer country, so they started with eggless mayo but name itself was not appealing so they changed it to veg mayo. Consumer were having doubts that eggless mayo can have a non-veg ingredient like cheese made from rennet, but vegetarian mayo is free from such ingredients. Mirza says that 140 million of India's 1.3bn population lives in SEC A & SEC B, so if we target even 25% of the population, we can get 35m consumers by end of 2020. According to AC Nielsen report Dr. Oetker holds 70% of the mayonnaise market share in India.

By the report of (*India Ketch Up, Pizza & Pasta Sauces Market Outlook, 2023*, n.d.) market for tomato ketchup and sauces is projected to grow up to INR 2000 crores. With major companies like Nestle with brand Maggie which hold a huge share of 1/3rd in the market. While HUL with its brand Kissan has more than 1/4th of the market share with GD Foods. All 3 companies cover 3/4th of the overall market share in ketchup/sauces.

In the report of (*Tomato Ketchup - India | Statista Market Forecast*, n.d.) its mentioned that revenue of Tomato ketchup condiment covers up to US\$ 2,248m in 2020. And is expected to grow year on

year by 6.9% (CAGR 2020-2025). while average consumption of ketchup is 1.3kg in June 2020. India ranks at 3rd position for overall revenue followed by Germany and japan, while USA tops the chart with US\$ 5,401m.

If we compare two products with health factor then in the article by (*User Research — What's Tomato Ketchup Got to Do with It?*, n.d.) says that ketchup is low-calorie and no fats condiment. Which contains only 15 calories per tbs and vitamin A and vitamin C. On other hand mayo contains 103 calories and 12 gm fat per tbs. But there is reverse ride of ketchup which can win mayo that is ketchup has high amount of sugar and salt. On an average ketchup has 4 gm of sugar and 190 mg of Na in per tbs.

FINDINGS BASED ON SECONDARY DATA

Tomato ketchup:

- Tomato Ketchup is made of tomatoes, vinegar, sugar, salt, and spices.
- Flavours of tomato ketchup hot and spicy, jalapeno tomato ketchup, sriracha tomato ketchup, chilly ketchup, hot and sweet, etc.
- Types of tomato are ketchup with no added sugar (sugar free), organic tomato ketchup, added honey instead of added sugar.
- Ketchup is one of the condiments and usually served with French fries, burgers, pizza as a dip.
- One tablespoon of ketchup contains 15 calories.
- Ketchup is high in sodium with 190 milligrams.
- Top 5 ketchup brands in India are Heinz Tomato Ketchup, Ching's Ketchup, Maggi Rich Tomato Ketchup, Kissan No Garlic No Onion Ketchup, Del Monte Ketchup.
- Revenue of tomato ketchup in year 2020 amounts to US\$ 2,248m.
- Tomato Ketchup is expected to show 9.1% in 2021 of revenue growth.
- Tomato Ketchup's average revenue per capita amounts to US\$1.63 in 2020.

Mayonnaise:

- Mayonnaise is made up of soybean oil, water, whole eggs and egg yolks, vinegar, salt, sugar, lemon juice, calcium disodium (used to protect quality), natural flavours.
- Chipotle Mayo, Black Pepper Mayo, Roasted Jalapeno Mayo, Smoked Paprika Mayonnaise, Barbecue Mayonnaise are some flavours of mayonnaise.
- Veg mayonnaise, mayonnaise classic (nonveg), burger mayonnaise are some types of mayonnaise.
- Mayonnaise is known as the condiment it is usually used in salads, burgers, sandwiches, cupcakes, and dips.
- One tablespoon of Mayonnaise contains 90 calories
- Mayonnaise has about half the sodium that ketchup has.
- Top 5 mayonnaise brands in India are Hellmann's Real Mayonnaise, Veeba Classic Mayonnaise, Dr. Oetker Fun Foods Veg Mayonnaise Original, Del Monte Eggless Mayonnaise, American Garden U.S. Mayonnaise.
- The market is expected to grow up to Rs 1000 crore by 2020.
- In the year 2016-17, mayonnaise, garlic and mint mayonnaise together have market share around 8%

CONCLUSION

From past few years mayo is growing at high rate and about to overtake ketchup in terms of market share in condiment market in India. While its totally

opposite in other countries like USA where market share of mayonnaise is very high compared to ketchup in condiment industry. If we look at the revenue share of ketchup is around US\$ 2,248m and is projected to grow further while mayo is just at INR 700 crores. So, we can say that for next few year mayonnaise cannot overtake ketchup in Indian condiment market but with growing rate in consumption of mayo in daily foods we can surely say that it will overtake ketchup in future. As mayo has various uses such as dip, spread, dressing, binding agent even as a sauce in a recipe. Mayo can only grow when consumption of fast foods is increased such as sandwich, burger, pizzas, and many more.

And if it wins the heart share in moms and children, then mothers can trust to use mayo in children's tiffin, snack or as a brunch for them. Latest product ranges such as lite mayo which has less fats in them and can attract health concern consumers to them, secondly veg mayo has also seen a great lion share in Indian market. If such new variants attract consumer then mayo will soon be called as household name in Indian condiment market.

Ketchup on other hand is not adding much variants to its product or in taste except the sugar free ketchup. Ketchup need to increase its product mix with taste which resembles Indian chutneys or can make it to be used as various other options such as dressing and binding agent which mayo can do very well. Having said ketchup is already in the market and do not want to change its taste and product but few modifications can keep them going long in front of mayo and Indian chutneys.

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