



## SYNERGY I.T.S JOURNAL OF IT & MANAGEMENT

#### Vol. 19, No. 1 January-June 2021 ISSN:0972-7361 The Footprints of Financial Inclusion and Reconnoitring its Proliferation: The Indian Scenario 2-22 Dr.Akinchan Buddhodev Sinha, Shri Mahesh Airan An Analytical study of Anger Management Levels with reference to teachers of Private HEI's of Meerut City. 23-35 Dr. Ankur Goel, Dr. Kumar Ratnesh **Impact of Global Trends on Professional Education** Dr. Abhishek Sharma, Dr. Ajay Sharma 36-45 Customer feedback on banking services: A case of Tamilnad Mercantile Bank Ltd. (TMB) services 46-60 Dr. Rajeev Johari, T. Rajeswaran Transition from Paper Money to E Money as an Impact of **Demonetization: A New Era in the Digital Sector** 61-77 Shashank Kumar Shrivastava **Internet of Things: Oppositions and Applications** Abhimanyu Ahluwalia 78-90



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#### **EDITORIAL**

Religion and culture have been the repository and source of values, while management as wisdom has the capacity to improve human life and living conditions. For a world of the future both must go hand in hand, creating a constructive synergy for all of us. We, at I.T.S; are proud to publish the Vol. 19 No: 01, edition of SYNERGY- I.T.S Journal of I.T & Management. This research journal is endeavoured to promote and disseminate the knowledge to the large numbers of academicians, researchers, students and practitioners across the world in the complex multi-disciplinary management field.

Dr. Akinchan Buddhodev Sinha and Shri Mahesh Airan's study focused on The Footprints of Financial Inclusion and Reconnoitring its Proliferation, Dr. Ankur Goel, Dr. Kumar Ratnesh paper focuses on the anger management levels and its association with gender. Dr. Abhishek Sharma and Dr. Ajay Sharma Director carried out an extensive study on the Impact of Global Trends on Professional Education, Dr. Rajeev Johari, T. Rajeswaran has carried out a detailed research study was aimed at exploring the satisfaction level of the customers for Tamilnad Mercantile Bank Ltd., Ghaziabad branch and their general perception regarding delivery of services at TMB, Shashank Kumar Shrivastava's paper examines how the digital payment system changed the nature of banking transactions in India after demonetisation, Abhimanyu Ahluwalia's paper critically examines the various potential applications of IoT and the research challenges associated with those applications.

As it is evident that the contributed papers delve into multiple aspects of management in different spheres of business and intellectual pursuits offering new perspectives and strategies to engage the reader and spur innovative thinking.

At Synergy, it has always been our endeavour to provide a framework for the furtherance of research into different aspects of Management and Information Technology. It is hoped that the present issue shall continue the tradition of path breaking research ideas from such diligent minds.

Editor - Synergy

### The Footprints of Financial Inclusion and Reconnoitring its Proliferation: The Indian Scenario

#### Dr. Akinchan Buddhodev Sinha<sup>1</sup>

#### Shri Mahesh Airan<sup>2</sup>

#### Abstract

A nation can grow economically and socially if its weaker section can turn out to be financial independent. This paper provides a comprehensive review of the growth of financial inclusion in India. It also covers the various initiatives taken by Government of India to promote financial inclusion in recent years. The Government launched Financial Inclusion Index to measure the performance of Financial Inclusion Index in the country. The study focuses on measure the performance of Regional Rural Banks, Scheduled State Co-operative Banks, Scheduled Urban Co-operative Banks and Public Sector Banks in terms of deposits. This study also covers the analysis of growth of branches of SBI & its Associates and other Nationalized Banks, Regional Rural Banks, Private Sector Banks and Small Finance Banks during the period 2016-2020. Further, analysis of deposits with Banks, Insurance and Post offices for the period 2015-20 has also been carried out to measure the growth of financial inclusion in the country. For analysing such facts, data for the study has been gathered through secondary sources including RBI Report and its website, IRDA website, India Post website, books on financial inclusion and other articles written by eminent authors. However, the activities of the financial institutions are determined by numerous factors, i.e., economic, legal, social, financial etc. which opens up several avenues for future research. To put in nutshell, it may be stated from the given analysis that financial inclusion has gained steam in India and is on the rise. Various key financial institutions are doing their best to reach out to maximum population both in mainland as well as far-flung areas of India.

**Keywords:** Financial Inclusion; Financial Inclusion Index; Financial Institutions; Banks; Digital Finance.

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#### Introduction

"Financial inclusion helps lift people out of poverty and can help speed economic development. It can draw more women into the mainstream of economic activity, harnessing their contributions to society."

## Sri Mulyani Indrawati, Minister of Finance of Indonesia, Former Head of the World Bank Group

Financial Inclusion, broadly defined, refers to universal access to a wide range of financial services at a reasonable cost. These include not only banking products but also other financial services such as insurance and equity products. It helps individuals and businesses have access to useful and affordable financial products and services that meet their needs. The essence of financial inclusion is to ensure delivery of financial services which include - bank accounts for savings and transactional purposes, low cost credit for productive, personal and other purposes, financial advisory services etc. Achieving Universal Financial Access by 2020 (UFA 2020) has been one of the key developmental agenda of the World Bank which aims to provide adults who currently aren't part of the formal financial system, with access to a transaction account to store money, send and receive payments to manage their financial lives.

Globally, the adoption of a formal National Financial Inclusion Strategy (NFIS) has accelerated significantly in the past decade. By mid-2018, more than 35 countries, including Brazil, China, Indonesia, Peru and Nigeria have launched a NFIS and another 25 countries are in the process of developing a strategy. Further, several countries have also updated their original NFIS (World Bank Group, 2018).Significant progress has been made over the past 10 years to advance financial inclusion worldwide. However, despite the substantial progress in financial access, there are still more than 1.7 billion adults who remains unbanked *(The Global Findex Database 2017, World Bank Group)*.The focus is to enhance the financial inclusion of vulnerable and underserved groups through leveraging digital financial innovation while at the same time addressing new digital risks with financial education and financial consumer protection.

In Indian context, the Government of India has been making concerted efforts to promote financial inclusion as one of the important national objectives of the country. Financial Inclusion has been a thrust area for Government, the Reserve Bank, and other regulators, with several steps having been taken and significant progress made over the years. Some of the major efforts made in the last five decades include - nationalization of banks, building up of robust branch network of scheduled commercial banks, co-operatives and regional rural banks, introduction of mandated priority sector lending targets, lead bank scheme, formation of self-help groups, permitting BCs/BFs to be appointed by banks to provide door step delivery of banking services, zero balance Basis Service bank Deposit (BSBD) accounts, etc. The RBI Committee on Medium-Term Path to Financial Inclusion under the Chairmanship of Shri Deepak Mohanty in the year 2015 has set the vision for financial inclusion as, *"convenient access to a basket of basic formal financial products and services that should include savings, remittance, credit, government-supported insurance and pension products to small and marginal farmers and low-income households at reasonable cost with adequate protection progressively supplemented by social cash transfers, besides increasing the access of small and marginal enterprises to formal finance with a greater reliance on technology to cut costs and improve service delivery, ....."* 

India has also been actively engaged with other countries and multilateral fora viz. Global Partnership for Financial Inclusion (GPFI) and Organization for Economic Co-operation and Development (OECD). India has been actively involved in preparation of relevant research and policy guides in Digitalisation, Regulation and Financial Inclusion that are published by GPFI from time to time.

Reserve Bank of India in the year 2020 had released a report on **'National Strategy for Financial Education'** with a vision to make financial services available, accessible, and affordable to all the citizen in a safe and transparent manner to support inclusive and resilient multi-stakeholder led growth. A set of guiding objectives have been described in the report along with action plans and suggests broad recommendations to achieve the same. The objectives mentioned in the report are briefed here under:

#### 1. Universal Access to Financial Services

Every village to have access to a formal financial service provider within a reasonable distance of 5 KM radius. The customers may be on boarded through an easy and hassle-free digital process and processes should be geared towards a less-paper ecosystem.

#### 2. Providing Basic Bouquet of Financial Services

Every adult who is willing and eligible needs to be provided with a basic bouquet of financial services that include a Basic Savings Bank Deposit Account, credit, a micro life and non-life insurance product, a pension product and a suitable investment product.

#### 3. Access to Livelihood and Skill Development

The new entrant to the financial system, if eligible and willing to undergo any livelihood/ skill development programme, may be given the relevant information about the ongoing Government livelihood programmes thus helping them to augment their skills and engage in meaningful economic activity and improve income generation.

#### 4. Financial Literacy and Education

Easy to understand financial literacy modules with specific target audience orientation (e.g. Children, young adults, women, new workers/ entrepreneurs, family person, about to retire, retired etc. in the forms of Audio-Video/ booklets shall be made available for understanding the product and processes involved. It is also expected that these modules would help the new entrants.

#### 5. Customer Protection and Grievance Redressal

Customers shall be made aware of the recourses available for resolution of their grievances. About storing and sharing of customer's biometric and demographic data, adequate safeguards need to be ensured to protect the customer's Right to Privacy.

#### 6. Effective Co-ordination

There needs to be a focused and continuous coordination between the key stakeholders viz. Government, the Regulators, financial service providers, Telecom Service Regulators, Skills Training institutes etc. to make sure that the customers are able to use the services in a sustained manner. The focus shall be to consolidate gains from previous efforts through focus on improvement of quality of service of last mile delivery viz., capacity building of Business Correspondents, and creating payments system ecosystems at village levels to deepen the culture of digital finance leading to ease of use and delivery.

The Government of India has also taken several steps to promote Financial Inclusion which are briefed hereunder:

Pradhan Mantri Jan Dhan Yojana (PMJDY): The Government initiated the National Mission for Financial Inclusion (NMFI), namely, PMJDY in August, 2014 to provide universal banking services for every unbaked household, based on the guiding principles of banking the unbanked, securing the unsecured, funding the unfunded and serving un served and underserved areas. A digital pipeline has been laid for the implementation of PMJDY through linking of Jan-Dhan account with mobile and Aadhaar [Jan Dhan-Aadhaar-Mobile (JAM)]. The performance of PMJDY in terms of accounts opened, deposit balance and average deposit balance over the time is tabulated as under:

S.No.	Item	Mar-17	Mar-18	Mar-19	Mar-20	Mar-21
1.	No. of PMJDY accounts (in Crore)	28.17	31.44	35.27	38.33	42.20
2.	Deposit in PMJDY accounts (in Rs. Crore)	62,972	78,494	96,107	1,18,434	1,45,551
3.	Average Deposit per PMJDY Account (in Rs.)	2,235	2,497	2,725	3,090	3,449
4.	Number of RuPay debit cards issued to PMJDY account-holders (in Crore)	21.99	23.65	27.91	29.30	30.90

Source: Department of Financial Services, Ministry of Finance

To strengthen financial inclusion, RBI has relaxed the branch authorisation guidelines in 2017 wherein fixed-point Business Correspondent outlets serving for more than 4 hours a day and five days a week are treated on par with physical brick and mortar branches.

To widen financial inclusion, RBI has issued differentiated banking license viz., Small Finance Banks (SFBs) and Payments Banks in 2015. The objective of setting up of SFBs was to further financial inclusion by provision of a savings vehicle and supply of credit to small business units, small and marginal farmers, micro and small industries and other unorganized sector entities, through high technology-low cost operations.

• **Pradhan Mantri Suraksha Bima Yojana (PMSBY):** With the aim of insuring the uninsured a universal social security system for all Indians, especially the poor and the under-privileged, the PMSBY was launched by the Hon'ble Prime Minister for providing cover for death/disability due to accident.

Some of the key initiatives undertaken in insurance sector include increasing awareness among citizens on the benefits and appropriateness of insurance and enabling greater availability of insurance products (including micro-insurance) through increasing the number of delivery channels including corporate agents and Common Service Centres.

For the protection of interests of policy holders and also in building their confidence in the system, the institution of Insurance Ombudsman has been created. This will ensure quick disposal of the grievances of the insured customers and also mitigate their problems involved in redressal of their grievances.

- **Prime Minister Mudra Yojna,** launched with the aim of financing of small business enterprises in manufacturing, trading and service sectors; including activities allied to agriculture such as poultry, dairy, beekeeping etc. by way of providing Term Loan and/or Working Capital with a corpus of Rs. 3,000 Crore.
- The Stand Up India Scheme launched on 5th April, 2016 aims to promote entrepreneurship among the Scheduled Caste/ Scheduled Tribe and Women by facilitating bank loans of value between Rs.10 lakh and Rs.1 Crore to at least one SC/ST borrower and one woman borrower per bank branch of Scheduled Commercial Banks for setting up Greenfield enterprises in trading, manufacturing and services sector. In 2019 20, the Stand Up India scheme was extended for the entire period coinciding with the 15th Finance Commission period of 2020 25.
- **Pradhan Mantri Jeevan Jyoti Bima Yojana:** With the aim of insuring the uninsured a universal social security system for all Indians, especially the poor and the underprivileged, the PMJJBY was launched by the Hon'ble Prime Minister for providing cover for death due to any reason.

#### **Review of Literature**

The inclusion growth has registered positive and beneficial due to positive change in both the constituents of inclusion growth i.e. intensity change and technology change (Gokam, 2011). The Government initiated steps for financial inclusion in 2004 by setting a commission headed by Shri H R Khan. Major initiatives were chalked out after the Rangarajan Committee Report in 2008.

There is a growing literature that highlights the role of Financial Inclusion on fostering the economic growth and financial development. World Bank (2008) reported that in the absence of inclusive formal financial system, poor individuals and small entrepreneurs have to rely on informal sources to invest in better opportunities because of its timely availability and easy accessibility but at a much greater interest burden. Financial Inclusion (FI) can help in removing this impediment. Achieving FI in a country like India, with large and diversified population with significant segments in rural and unorganised sectors requires a high level of penetration by the formal financial system.

**Reserve Bank of India (2010)** reported that there is a distinct regional imbalance in the access to financial services, whereby the most heavily populated and poverty stricken regions of eastern, central and north - eastern India have a disproportionately lower level of financial access. While these states account for 54 per cent of the country's population and 40.5 per cent of the total bank branches, they have only a 20 per cent share in outstanding bank credit and 29 per cent share of deposits

**Saroj Upadhyay (2010)** stated that access to financial services is an important tool for both economic growth and human development. Inclusion should be viewed as a process of including the excluded as agents of development instead of welfare targets. Inclusion should entail understanding the poor, their lives, their needs, their productivity and their vulnerability. If a poor person has to participate in economic growth, he should have the power to access a wide range of financial services such as savings, payments, remittances and insurance. The success of Financial Inclusion depends upon growth of credit which is to be matched by a corresponding growth in deposits.

Abiola A. Babajide, Folasade B. Adegboye, Alexander E. Omankhanlen (2015), the authors suggested that Financial system plays the significant role to promote trade and industry expansion and improvement throughout financial intermediation by channelling resources commencing the additional unit to the insufficiency unit of the financial system. Numerous studies include conventional that financial growth tend to boost financially viable development and decrease unfairness and deficiency (Ajakaiye, 2012). It is conventional in journalism that a financial system among banks as its most important module, provide linkage for the diverse

sector of the financial system and encourage a far above the earth altitude of specialty, proficiency, economy level and a encouraging surroundings for the accomplishment of different government policy, such as non-inflationary development, switch over rate strength, balance of costs stability and occupied service (Sanusi, 2011). This is just achievable if the financial system is all comprehensive. With a superior percentage outer surface the purview of government, financial systems cannot accomplish the intention of financial development.

**Piñeyro (2013)** has studied the level of financial inclusion in 32 states of Mexico and its Municipality. Using principal component analysis, he found that around 36 percent of Municipality are financial inclusive whereas 29 percent of them are still excluded. He also found a direct relationship between education and financial inclusion and to some extent the high correlation between poverty and financial inclusion. Thus he suggested that in order to benefit a large mass of excluded population, Mexican government should encourage equitable growth and equal opportunities.

World Bank (2014) in its Global Financial Development Report stated that financial inclusion is important for development and poverty reduction. Considerable evidence indicates that the poor benefit enormously from basic payments, savings, and insurance services. For firms, particularly the small and young ones that are subject to greater constraints, access to finance is associated with innovation, job creation, and growth. But dozens of microcredit experiments paint a mixed picture about the development benefits of microfinance projects targeted at particular groups in the population. Further, it is possible to enhance financial capability financial knowledge, skills, attitudes, and behaviors—through well-designed, targeted interventions. Financial education has a measurable impact if it reaches people during teachable moments, for instance, when they are starting a job or purchasing a major financial product. Financial education is especially beneficial for individuals with limited financial skills. Leveraging social networks (for example, involving both parents and children) tends to enhance the impact of financial education. Delivery mode matters, too; thus, engaging delivery channels—such as entertainment education—shows promise. In microenterprises, business training programs have been found to lead to improvements in knowledge, but have a relatively small impact on business practices and performance and depend on context and gender, with mixed results. The content of training also matters: simple rule-of-thumb training is more effective than standard training in business and accounting.

**Chakrabarti and Kaushiki (2015)** stated that microfinance industry in India, one of the largest in the world, has played a critical role in India's financial inclusion. Though its roots can be traced back at least to the 1970s, it has exploded in size and reach since the 1990s, been largely South India based in its distribution and has already witnessed a regulation-induced crisis in 2010. The SHG-bank linkage model and the MFI model have provided two alternative routes in the sector with the latter starting late but showing spectacular growth before getting caught in the crisis. The sector has now rebounded from the crisis mode and new developments including the MUDRA Bank are expected to support the already-strong growth in the sector, one of the fastest in the world.

*Aurelie (2016)* analyzed that the recent initiatives taken by the main institutional stakeholders to reach full financial inclusion in the country through a case study. Evidence of the importance of financial inclusion for economic growth and development are now well established and documented, but little is known about the role institutions and policies can play and how institutional frameworks can support inclusive financial development. The GOI and all the actors of the financial sector need to take into account all aspects of financial inclusion. The increase of the number of accounts is not sufficient as a worrying proportion of them are dormant. Coordination should be improved among public and private actors, the latter being fully integrated in national schemes and policies. The depth of the financial sector should also be a matter of attention, as well as the sustainability of the financial inclusion results obtained so far. It is important to know if they rely only on the special schemes and measures implemented or if they will remain at this level overtime, or even progress further.

#### Objective of the study

- To comprehend whether there is a significant difference or not in the deposits scenario of Regional Rural Banks (RRBs), Scheduled State Co-operative Banks, Scheduled Urban Co-operative Banks and Public Sector Banks.
- 2. To know the growth in branches of SBI & its Associates and other Nationalized Banks, Regional Rural Banks, Private Sector Banks and Small Finance Banks.
- 3. To ascertain the performance of three crucial financial institutions, i.e., banks, insurance companies and post offices with reference to their deposits.

#### Research Methodology

- 1. F-Test (One Factor Model): This statistical tool will assist in comprehending the following:
  - Whether there is a significant difference or not in the deposits of Regional Rural Banks (RRBs), Scheduled State Co-operative Banks, Scheduled Urban Cooperative Banks and Public Sector Banks during the period considered for the study, i.e., March 2012 to March 2020.
  - ii. Whether there is a significant difference or not in the growth of branches of SBI & its Associates and other Nationalized Banks, Regional Rural Banks, Private Sector Banks during the period taken into account for conducting the study, i.e., 2016-2020.
  - Whether there exists a significant difference or not in the deposits of three key financial institutions, i.e., Banks, Insurance Companies and Post Offices during the period 2015-2020
- 2. Standard Deviation and Co-efficient of Variation: This statistical tool will assist in ascertaining the deviation in the growth of branches of SBI &its Associates and other Nationalized Banks, Regional Rural Banks, Private Sector Banks and Small Finance Banks, and deposits and insurance premiums of banks, post offices and insurance companies.

#### Limitations of the study

- 1. This research study is based on the secondary data.
- 2. Due to various technical constraints all the facets and facts of financial inclusion

#### **Proliferation of Financial Inclusion**

To gauge the magnitude of proliferation of financial inclusion in India, various vital parameters have been considered, i.e., deposits base of Regional Rural Banks (RRBs), Scheduled State Co-operative Banks, Scheduled Urban Co-operative Banks and Public Sector Banks, growth in the branches of SBI & its Associates and other Nationalized Banks, Regional Rural Banks, Private Sector Banks and Small Finance Banks, deposits and insurance premiums of banks, post offices and insurance companies.

F-Test (One Factor Model) and Standard Deviation and Co-efficient of Variation have been used as a barometer to know the deviations in the growth of branches of SBI & its Associates and other Nationalized Banks, Regional Rural Banks, Private Sector Banks and Small Finance Banks and deposits and insurance premiums of banks, post offices and insurance companies.

- 1) Studying whether there is a significant difference or not in the deposits of Regional Rural Banks (RRBs), Scheduled State Co-operative Banks, Scheduled Urban Cooperative Banks and Public Sector Banks during March 2012 to March 2020.
- a) F-Test (One Factor Model)

Null Hypothesis (H0): There is no significant difference in the deposits of Regional Rural Banks (RRBs), Scheduled State Co-operative Banks, Scheduled Urban Co-operative Banks and Public Sector Banks during March 2012 to March 2020.

Alternative Hypothesis (H1): There is a significant difference in the deposits of Regional Rural Banks (RRBs), Scheduled State Co-operative Banks, Scheduled Urban Co-operative Banks and Public Sector Banks during March 2012 to March 2020.

Years	Regional Rural Banks (RRBs)	Scheduled State Co-operative Banks	Scheduled Urban Co-operative Banks	Public Sector Banks
March 2012	173392.77	64021.85	104689.33	3366201.96
March 2013	196422.29	71463.16	120078.29	3824976.56
March 2014	220623.80	77668.35	136856.06	4240970.49
March 2015	254226.29	77232.93	154605.15	4638524.71
March 2016	293754.38	79563.78	168780.97	4819878.26
March 2017	362771.47	90276.88	200638.40	5302954.78
March 2018	383818.24	98767.82	203722.81	7673298.67
March 2019	422157.20	110559.50	217247.57	7959056.03
March 2020	460554.43	187455.79	220602.95	8451751.15

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(IND Crore)

#### **Anova: Single Factor**

Groups	Count	Sum	Average	Variance
Column 1	9	2767721	307524.5	10793605869.5792
Column 2	9	857010.1	95223.34	1399273364.83305
Column 3	9	1527222	169691.3	1870342758.35653
Column 4	9	50277613	5586401	3700414585317.25

SUMMARY	
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ANOVA						
Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	19671736771 7529	3	655724559 05843	70.61284	3.35	2.90112
Within Groups	29715822458 480.1	32	928619451 827.503			
Total	22643319017	35				

**Decision:** Since p-value is higher than 0.05, so null hypothesis is accepted. Hence, there is no significant difference in the deposits of Regional Rural Banks (RRBs), Scheduled State Co-operative Banks, Scheduled Urban Co-operative Banks and Public Sector Banks during March 2012 to March 2020.

2) Growth of branches of Public Sector Banks, Regional Rural Banks, Private Sector Banks and Small Finance Banks during the period 2016-2020

Years	SBI & its Associates and other Nationalized Banks	Regional Banks	Rural Private Sector Banks	Small Finance Banks
2016	531	87	144	121
2017	251	40	125	248
2018	118	35	112	182
2019	105	12	766	376
2020	1541	7	172	55
Mean (X)	509.2	36.2	263.8	196.4
Standard Deviation (	601.6994266 (s)	31.76003778	281.6437466	123.2935521
Coefficient Variation (	t of 1.181656376 CV)	1.139797133	0.610700582	1.592946238

#### b) F-test (One Factor Model)

Null Hypothesis (H0): There is no significant difference in the growth of branches of SBI & its Associates and other Nationalized Banks, Regional Rural Banks, Private Sector Banks and Small Finance Banks during the period 2016-2020.

**Alternative Hypothesis (H1):** There is a significant difference in the growth of branches of SBI & its Associates and other Nationalized Banks, Regional Rural Banks, Private Sector Banks and Small Finance Banks during the period 2016-2020.

#### **Anova: Single Factor**

#### SUMMARY

Groups	Count	Sum	Average	Variance
Column 1	5	2546	509.2	362042.2
Column 2	5	181	36.2	1008.7
Column 3	5	1319	263.8	79323.2
Column 4	5	982	196.4	15201.3

#### ANOVA

Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	579753.2	3	193251.1	1.689348	0.209307	3.238872
Within Groups	1830302	16	114393.9			
Total	2410055	19				

**Decision:** Since p-value is higher than 0.05, so null hypothesis is accepted. Hence, there is no significant difference in the growth of branches of SBI & its Associates and other Nationalized Banks, Regional Rural Banks, Private Sector Banks and Small Finance Banks during the period 2016-2020.

# 3) Studying whether there is a significant difference or not in the deposits of three key financial institutions, i.e., Banks, Insurance Companies and Post Offices during the period 2015-2020

**Null Hypothesis (H0):** There is no significant difference in the deposits of three key financial institutions, i.e., Banks, Insurance Companies and Post Offices during the period 2015-2020

**Alternative Hypothesis (H1):** There is a significant difference in the deposits of three key financial institutions, i.e., Banks, Insurance Companies and Post Offices during the period 2015-2020

Years	Banks	Insurance Companies	Post Offices
+	5124589.08	328102.01	619317.44
2016	5361977.39	366943.23	639254.06
2017	5956641.53	418476.62	680078.7
2018	8359607.54	458809.44	722443.7
2019	8709020.3	508132.03	908387.05
2020	9320364.32	572910.19	1066133.28

#### **Anova: Single Factor**

#### SUMMARY

Groups	Count	Sum	Average	Variance
Column 1	6	12105	2017.5	3.5
Column 2	6	42832200	7138700	3.46537
Column 3	6	2653374	442228.9	8190557268
Column 4	6	4635614	772602.4	31390487536

#### **ANOVA**

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	2.05798	3	6.86	78.28871914	3.16	3.098391
Within Groups	1.75247	20	8.76			
Total	2.2332	23				

**Decision:** Since p-value is higher than 0.05, so null hypothesis is accepted. Hence, there is no significant difference in the deposits of three key financial institutions, i.e., Banks, Insurance Companies and Post Offices during the period 2015-2020.

- 4) Comprehending the variations in deposits / insurance premiums of banks, post offices and insurance companies
  - a) Standard Deviation and Co-efficient of Variation of Investments (Deposits/Insurance Premiums)

(INR Crore)

Years	Banks	Insurance Companies	Post Offices
2015	5124589.08	328102.01	619317.44
2016	5361977.39	366943.23	639254.06
2017	5956641.53	418476.62	680078.7
2018	8359607.54	458809.44	722443.7
2019	8709020.3	508132.03	908387.05
2020	9320364.32	572910.19	1066133.28
Mean (X <sup>-</sup> )	7138700.027	442228.92	772602.3717
Standard Deviation (s)	1861549.276	90501.6976	177173.6085
Coefficient of Variation (CV)	26.0768665	20.46489804	28.60788297

#### **Financial Institutions**

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#### **Data Analysis or Findings**

Taking the first statistical analysis that is whether there is a significant difference or not in the deposits of four types banks considered for the research study, it may be opined from the deposits scenario of the four types of banks, i.e., Regional Rural Banks, Scheduled State Cooperative Banks, Scheduled Urban Co-operative Banks and Public Sector Banks, that they are playing a pivotal role in bringing large number of populace in the fold of the formal banking system, especially looking at the value of deposits of Regional Rural Banks and Small Finance Banks, as there operate mostly in rural and semi-urban areas of India.

Further, it also indicates that all the four types of banks considered for the analysis are performing on equal footing with reference to creation of deposits across India.

Coming to standard deviation and co-efficient of variation of the branches of the aforesaid banks during the period considered for the research study, i.e., 2016-2020, it may be inferred that private sector banks have grown steadily in comparison to SBI & its associates and other nationalized banks, Regional Rural Banks and Small Finance Banks, since it has the lowest Coefficient of Variation, 0.61. Regional Rural Banks with Coefficient of Variation of 1.139 or 1.14, then SBI & its Associates and nationalized banks with Coefficient of Variation at 1.18 and lastly Small Finance Banks with Coefficient of Variation at 1.18 and lastly small Finance Banks might not have been uniform during the given period.

It is to be noted that merely on the basis of one statistical analysis we cannot conclude that the growth in the branches of the banks have been random or erratic, since there are numerous political, economic, social, technological, legal and environmental factors that influence the expansion of operations or setting up of branches of an organization.

However, when we observe the results of the F-Test (One Factor Model) applied on the data of the growth of branches of the aforesaid banks, it may be opined that there is a light at the end of the tunnel, as the results indicates that there is no significant difference in the growth of branches of the above mentioned forms of banks during the period 2016-2020, meaning thereby, that the mentioned banks are trying their level best to reach out to the maximum population of India.

Finally, analyzing the proliferation of financial inclusion through the deposits / premiums base of three key financial institutions that act as a fulcrum of Indian financial system and catalyst in financial inclusion, i.e., Banks, Insurance Companies and Post Offices, it is being observed that there is no significant difference in their performance in terms of deposits base during the period considered for the research study, i.e., 2015-2020, meaning thereby that people have access and proclivity towards all the three financial institutions as well as they are conversant of the presence of these institutions and their products.

However, while observing the Coefficient of Variation values of the deposits / premiums of the mentioned three financial institutions, insurance sector appears to be performing well in comparison to banks and post offices with lowest Coefficient of Variation, i.e., 20.46. But as mentioned above, the same theory applies in this case too, i.e., merely on the basis of deposits/premium values it may not be appropriate to deduce that banks and post offices are not performing well, as the activities of the financial institutions are determined by numerous factors, i.e., economic, legal, social, financial etc. For instance, in the recent past there have been mergers of public sector banks which have reduced the number of public sector banks but it may not imply that their business in terms of volume and value have also moved southwards.

To put in nutshell, it may be stated from the above analysis that financial inclusion has gained steam in India and is on the rise. Various key financial institutions are doing their best to reach out to maximum population both in mainland as well as far-flung areas of India.

#### Introduction of Financial Inclusion Index

RBI Statement on Developmental and Regulatory Policies announced various developmental and regulatory policy measures on April 07, 2021. One of the measures was to construct and periodically publish a "Financial Inclusion Index" (FI Index). Accordingly, the RBI introduced 'Financial Inclusion Index' on August 17, 2021 to measure and improve the extent of access, usage and quality of financial inclusion in the country. It has been conceptualised as a comprehensive index, incorporating details of banking, investments, insurance, postal as well as the pension sector in consultation with the government and respective sectoral regulators. The key features of FI-Index are as under:

- The FI Index will be published annually in July every year.
- The index will capture information on various aspects of financial inclusion in a single value ranging between 0 and 100, wherein value 0 will represent complete financial exclusion and 100 would indicate full financial inclusion.
- The FI-Index comprises of three broad parameters (weights indicated in brackets) viz., Access (35%), Usage (45%), and Quality (20%) with each of these consisting of various dimensions, which are computed based on a number of indicators.
- The Index is responsive to ease of access, availability and usage of services, and quality of services, comprising in all 97 indicators.
- A unique feature of the Index is the Quality parameter which captures the quality aspect of financial inclusion as reflected by financial literacy, consumer protection, and inequalities and deficiencies in services.
- The FI-Index has been constructed without any 'base year' and as such it reflects cumulative efforts of all stakeholders over the years towards financial inclusion.

The annual FI-Index for the period ending March 2021 is 53.9 as against 43.4 for the period ending March 2017.

#### Conclusion

India is making rapid strides in financial inclusion. The soaring deposits base of public sector banks, private sector banks, regional rural banks, small finance banks, post offices and rising insurance premiums of insurance companies are metaphor of proliferation of financial inclusion and expanding network of formal financial system.

Innovative schemes of Government of India like Pradhan Mantri Jan Dhan Yojana (PMJDY), Pradhan Mantri Suraksha Bima Yojana (PMSBY), Prime Minister Mudra Yojna etc. are playing a pivotal role in strengthening financial inclusion. By accelerating the pace of financial inclusion the Government has brought substantial number of unbanked population under the fold of formal banking system, as evident from the growing number of branches of various forms of banks and deposits. Further, the growth in insurance premiums is an allegory of growing proclivity of population towards other forms of financial products.

Thus, it may be opined that in near future due to robust financial inclusion initiatives the whole population of India will be covered under the formal financial framework.

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## An Analytical study of Anger Management Levels with reference to teachers of Private HEI's of Meerut City

**Dr. Ankur Goel**<sup>1</sup>

Dr. Kumar Ratnesh<sup>2</sup>

#### Abstract

**Purpose:** The purpose of this paper is to analyze the anger management levels and to associate them with gender (teachers of selected HEI's of Meerut city). It also emphasizes on various symptoms, causes and coping strategies of anger.

**Design/Methodology/Approach:** The study is based primarily based on primary data. The data is collected through survey. A structured two point scale questionnaire has been used to measure the anger. The questionnaire was administered on 100 (valid responses) randomly selected individuals from HEI's of Meerut city to make the sample representative. X2 test is applied to the data to find out the degree of association.

**Findings:** The findings exhibits that there is a significant difference in anger management levels of males and females as males are more prone to anger as compared to females. Also the various symptoms, causes and anger coping strategies have been portrayed to fulfill the outcome of the study.

**Practical Implication:** The findings of the study are critically significant as in this stress based environment especially in private educational institutions it is highly necessary for everyone to have best anger management skills.

**Originality/Value:**This paper is original work of the researcher and it adds value to all the present studies on the anger management especially for teachers' fraternity of private higher educational institutions.

Keywords-Anger management, causes of anger, symptoms, private institutions.

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#### 1. Introduction:

Anger is one of the most common and destructive delusion & it affects our mend almost everyday. It is an emotion that is accompanied by physiological, behavioral & physical changes. This strong emotion of displeasure is caused by some kind of discontent that is either real or perceived to be real by the individual. The cognitive behavior theory attributes anger to several factors such as past experiences, behavior learned from others, genetic predisposition & a lack of problem solving ability. The part of our brain that affects our anger and depression is the 'amygdala'. This part of brain is trigged, normally, through becoming scared or angered which in turns invokes the fight or flight response in the brain. Anger can be constructive or destructive. Constructive anger can lead you to realize the released energy of anger into the harder task performance and more effort toward work; also it motivates to take action to correct that wrong thing. Out of control anger alienates friends, co-workers & family members. It also causes reduced performance, health problems & even early mortality.

#### 2. Objectives of the Study:

- To find out whether the males are more prone to anger as compared to females or not.
- To find out the various symptoms of anger.
- To find out the causes of anger.
- To provide suggestions to cope us with anger.

#### 3. Review of Literature:

*Mathew A Kerr, 2007 -* Under the study possible origin of expression of anger and its assessment, implications of anger expression for interpersonal relationships and its outcomes. The expression by adults has influenced the children.

**Oolup, 2015 -** In the study, it has been taken care of to study the experience of anger among children using their own words. The participants were children between 8 and 9 and the main themes discovered by the study is understanding anger, origins of anger, consequences of anger, regulation and resolution of anger and finally relation with others.

**Selahattin Avsaroglu, 2012 -** It was found that there is a low level of negative correlation between trait anger and emotional sensitivity, emotional control social sensitivity, social control. As a conclusion social skills predict trait anger, anger in, anger out and anger control significantly.

**Hejatallah Tahmasebian, 2014 -** It was found that there is significant difference between experimental group and control group. Uncontrolled anger and the deleterious consequences of anger within and outside of the individual put health at risk and weakness and short comings in the management of anger. As a result anger management education program appears to be necessary.

*Hamel, 2013* - The study was conducted with third grade students taken as semi structured focus groups. Three questions were asked to the children. 1) What did you learn about dealing with anger this week. 2) What are some good/positive things that happened between you and your classmates this make? 3) What are some not so good or negative things that happened between you and your and your classmates this week? It was concluded as following. Managing anger, roots of anger, consequences of anger, expression of anger, avoidance strategies, and impact of anger relationships. Children think anger as bad and aggression as the same.

**Lench, 2004 -** Results indicate that people in the anger management group and people who scored high on the anger inventory demonstrate impairment in their relationships. There were also differences in the coping styles and anger expression styles used by angry individuals compared to those who were low in anger. These findings have practical implications for the diagnosis and treatment of anger-related disorders.

*Kevin Howells, 2002* -The experience and expression of anger has been studied in a wide range of clinical and non- clinical populations, including students, community residents, health-care clients, psychiatric/ residential patients and adolescents in institutional care. Findings such as these have lead to the widespread implementation of anger management programs in prison and community corrections settings around the world.

Laura K Gee, 2017 - The tools that regulate emotions could decrease the use of punishments while keeping welfare high, possibly depending on pre-existing levels of aggression. In the

study, it was found that adopting an objective attitude (objective), through a form of emotion regulation called cognitive reappraisal, decreases the use of punishments and makes a statistically in significant improvement to both net earnings and self-reported emotions compared to a control condition (natural).

*Valizadeh, 2010 -* Results of this study indicated that anger management skills training in decreasing aggression level of mothers with ADHD children's is effective. Based on the results anger management skills training can be considered an effective program for prevention of aggression and promoting anger management skills in mothers with ADHD children's.

*Gayathri S Prabhu, 2016 -* In this study the relationship between anger management and the effects on the mental health of medical students was evaluated. When anger is suppressed and not let out, it can be an underlying factor for anxiety and depression. Therefore, more emphasis needs to be placed on educating students on how to manage their anger especially in a stressful environment away from home.

All the above studies are lacking to study the anger management on the teachers of private higher educational institutions and especially in Meerut City which is one of the most emerging and prominent educational hub in western UP.

#### 4. Research Methodology:

Research Methodology applied in this research paper is quite simple and easy to understand and can be depicted as follows:

- a. Research Design is **Exploratory & Descriptive** being the author has explored the relationship between the gender and anger management skills of departmental heads of selected educational institutions of Meerut city.
- Research Approach is Quantitative as the close ended responses received by teachers/faculty members had been edited, codified and analysis was done further.
   Qualitative data has been used for symptoms, causes and coping of anger.

- c. Research Hypothesis is as follows:
- **H0:** There is no significant difference in anger management skills between male and females' departmental heads of educational institutions.
- **H1:** There is significant difference in anger management skills between males and females departmental heads of educational institutions.
- d. Data Collection method is mainly "Primary" which after necessary editing and coding has been further analyzed to portray the outcome of the research.
- e. Sampling frame is Private Universities/Affiliated institutions of Meerut City (UP) being Meerut is one of the most emerging educational hubs in western UP.
- f. Sample Unit & Sample size It consists of hundred (100)(valid responses) faculty members of selected educational institutions of Meerut city.
- g. Survey Instrument is a structured two point scale questionnaire which was used to measure the anger. The two types of responses used in the questionnaire in order i.e True & False. All respondents were personally contacted over phone/whatsapp for the collection of responses.
- h. Time frame of the study is two months 07th May 2021 to 07th July 2021.
- i. Data Analysis Technique & Tools After collecting responses data has been edited, coded and modified to present the objectives of the research. Chi-square test was performed for hypothesis testing and to find out the degree of association.

#### 5. Data Analysis, Interpretation and Findings:

The data analysis, interpretations and findings have been divided into four parts so as to portray the outcome of the research. The basic demographic analysis has been ignored so as to shorten the length of the paper.

#### a. Hypothesis Testing

- H0: There is no significant difference in anger management skills between male and females' departmental heads of educational institutions.
- H1: There is significant difference in anger management skills between males and females departmental heads of educational institutions.

Gender/Levels	Better Anger	Normal Anger	Normal Anger	
	Management	Management	Management	
	Skills	Skills	Problem	
				Total
	I	II	III	
Male	10	15	25	50
Female	25	10	15	50
Total	35	25	40	100

#### **Table: 5.1 Observed Frequency Table**

#### Table: 5.1 Expected Frequency Table

Gender/Levels	Better Anger Management Skills	Normal Anger Management Skills	Normal Anger Management Problem	
				Total
		I		
Male	10	15	25	50
Female	25	10	15	50
Total	35	25	40	100

$$\chi^{2}_{cal} = \sum_{i} \sum_{j} \left( \frac{\text{Oij-Eij}}{\text{Eij}} \right)^{2}$$
$$= \frac{(10 - 17.5)^{2}}{17.5} + \frac{(25 - 17.5)^{2}}{17.5} + \frac{(15 - 12.5)^{2}}{12.5}^{2}$$
$$+ \frac{(10 - 12.5)^{2}}{12.5} + \frac{(25 - 20)^{2}}{20} + \frac{(15 - 20)^{2}}{20}^{2}$$
$$= \frac{56.25}{17.5} + \frac{56.25}{17.5} + \frac{6.25}{12.5} + \frac{6.25}{12.5} + \frac{25}{20} + \frac{25}{20}^{2}$$
$$= 3.21 + 3.21 + 0.5 + 0.5 + 1.25 + 1.25$$
$$\chi^{2}_{cal} = 9.92; \ \chi^{2}_{tab} \ (.05) = 5.99$$

Where degree of freedom = 2 and Level of significance ( $\alpha$ ) = 5%

#### So the null hypothesis (H0) is rejected at 5% level of significance.

#### Interpretation:

In the light of the observation we interpret that 'Anger levels' and 'Gender' are associated or simply dependent on each other. Furthermore from the data it is obvious that males are more prone to anger as compared to females as out of 100 respondents (50males and 50 females), 25 males are having anger management problems where as only 15 females are lying in the same category.

#### 5.2 Symptoms of Anger

Symptoms of anger lies into the following 2 categories:-

#### 5.2.1 Emotional & Behavioral Symptoms:- It includes

- A desire to escape from the situation.
- Irritation

- Restlessness
- Guilt & Resentment
- Desire to attack verbally or physically.
- Secretive behavior like putting others down.
- Psychological manipulations of the thoughts & emotions
- A feeling of self blame & self sacrifice
- Withdrawing or isolating from the people.
- Feeling of threat & fear
- Destructiveness & bullying other or even projective blame on others.
- Manic Behavior etc.

#### 5.2.2 Physical Symptoms: It includes:-

- Grinding teeth
- Clenching jaw
- Stomach upset
- Accelerated heart rate
- Sweating
- Breathlessness
- Hot flashes on the face
- Trembling hands & sometimes lips or jaws
- Dizziness
- Stammering

• Tingling at the back of the neck etc.

#### 5.3 Causes of Anger

Most of the time who experience anger, explain its arousal as a result of "What has happened to them" such explanations confirm the illusion that anger has a discrete external cause. Anger can be of multi casual origin which can be external as well as internal as according to Britannica Encyclopedia, an internal infection can cause pain which in turn can activate anger.

#### 5.3.1 Internal causes of anger

- Individual who use emotional reasoning tends to become irritated that other people tell them because they perceive it as an attack on themselves.
- Often stress related anxiety decreases one's tolerance for frustration & even the normal things can be perceived as threats.
- Overvaulting expectations can lead to failure & this will give rise to anger & frustration.
- If one is not well adjusted in the society or between people than this looking glass self can make one angry.
- Emotional instability & immaturity will lead to the reaction comprising anger.

#### 5.3.2 External causes of anger

- Personal attack or the verbal abuse by the other person.
- Treat for resources, privileges, benefits, health, safety or security, survival etc.
- Rejection from the other person.
- Destruction of any valuable object event or individual.
- Being victims of any individual, event or circumstances.
- Being provoked by the other person.
- Undue personal or professional pressures.

#### 5.4 Coping - up with anger

Though anger is inevitable emotion but as it can reduce one's decision making ability and performance, it is necessary to manage anger at the earliest. Some of the methods to cope up with anger are as follow:

- Learn to Relax: It is very important to learn to relax by deep breathing, help of yoga or meditation by pampering yourself, by a mantra given by the movie 3 idiots "All is Well" etc. Sound sleep can also relax a lot.
- **Cognitive Restructuring:** It is changing the way you think about things. It involves becoming more optimistic & more rational rather than emotional.
- **Developing problem solving skills:** Whenever a person is encountered by a problem than instead of loosing temper it is good to analyze the situation & the best possible solution.
- **Introspection:** One has to find out the reasons of not meeting expectations, the behavioral pattern which is irritating others & taking corrective actions.
- Adding Humor to life: It is not necessary to behave every time very sincerely. One can try using humorous acts can lighten one's mood. Adding humor can not only uplift the one's mood but it soothes the others also.
- Change your environment: Environment plays very important role in making one irritated & fury. In the frustrating environment one can take a break for 15 - 20 min to regroup & refresh.
- **Exercise Regularly:** Regularly exercise can reduce the flow of hormones & chemical that causes anger.
- Withdrawal: Withdrawing from the intense situation can also help up to avoid anger.
- **Emotional Intelligence:** Becoming more emotional intelligent let one to understand other's better & act accordingly.

#### 6. Suggestions:

Teaching is a highly noble and respected profession, so teachers are required to take utmost care in anger management.

The work environment must be made friendly for the teachers to manger the anger in a better way.

Management/Administration of private HEI's must adopt such measures so that the teachers must be free from stress.

There must be adoption of team management strategy among teachers to cope up with the stress.

Male faculty members must adopt some specialized anger coping strategies to manage the anger in better way.

#### 7. Conclusion:

The results of the study are concrete and valid as they examined that there is a significant difference in anger levels in male teachers as compared to females. Hence gender is strongly associated with anger management. There are various emotional, behaiviourial and physical symptoms of anger among the teachers. Also the external and internal causes of anger which stimulate the teachers for anger. However various anger coping strategies have been examines for teachers of private institutions to manage the anger in a better way.

#### 7. Limitations of the Present Study:

The major limitations with present study are limited time frame and a very small convenient sample size. Secondly, respondents have been bit hesitant and reluctant to provide the exact responses regarding the anger management.

#### 8. Scope for Future Research:

In a behavioral research, anger management is one the widest domain of study. This scope of this study can be broadened by conducting the more comprehensive research on anger management by extending the sample size in various geographical areas.
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# Dr. Abhishek Sharma<sup>1</sup>

Dr. Ajay Sharma<sup>2</sup>

# Abstract

As globalization of the world economy continues unabated, a parallel growth of globalization of knowledge is also taking place. This latter trend is little affected by the boundaries between developed and less developed countries and is having a particular impact on trends in education. This article looks at the impact of globalization within the context of education in South Africa. It focuses on different perspectives of globalization and identifies key factors that may have an impact on education in South Africa. Finally, it argues that in order to respond to the dangers of marginalization posed by globalization it will be crucial to form, and be part of, new alliances and networks. These will both provide opportunities for sharing knowledge and skills and also build economic strength.

Keywords: Global Trends, Information Technology, Professional Education, Global Education

# 1. Introduction

Globalization is an important development that changed deeply the world in modern history. It is seen that a new era starts and nations face huge changes in their social, economic and cultural ways, and it is obvious that it comes into our society new concepts and values and they carry new problems and perspectives for the nations in the process of globalization. In global world, information society is another important concept, it needs creative individuals, and governments should only train in school the individuals to adopt the new values and developing student's ability to acquire, and use knowledge gains importance in the process of globalization. However, Learners can develop their critical thinking skills, obtain democratic values and ethics and apply their knowledge independently in an effectively designed teaching-learning environment. Additionally, future universities and other institutions are not thought only for the young, they are

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expected to become more open to people of all ages who wish to further their education, this is inevitable in the globalized world. Therefore, how is globalization effecting education? And how can institutions benefit from the positive effects of globalization and avoid its negative ones?

#### 2. Globalization and Education

Globalization has a close relation with education. As education has an important place in shaping a society, globalization has to be connected with education and the global activities have a deep impact on it. Globalization of the world economies is leading to increase emphasis on internationalization of the subjects included in a course of study in school. It also creates the opportunities for new partnerships in research and teaching with agencies and institutions across the world. Globalization is one of most powerful worldwide forces that are transforming the basis of business competition, paradoxically harkening an era in which small, local communities of practice may lead to a prominent structural form. New challenges force social, economic and cultural values. In the field of education a lot of changes are expected duties of schools is to ameliorate the individual's appropriateness with the concept of globalization that changes traditional structure of education, which is one of the main rapid changes today in universities and other institutions that are redoubling their efforts to respond to social change. Gordon outlines the importance of higher education in the learning society by attributing the report of the National Committee of Inquiry into Higher Education as follows: "Higher education is principal to the social, economic and cultural health of the nation. It will contribute not only through the intellectual development of students and by preparing them for work, but also by adding to the world's store of knowledge and understanding,.." (Gordon, 1999, p 09)

In this quotation, Gordon said that Higher Education is very important in different domains and it contributes in the promotion of student s" knowledge; and helping them to integrate in job fields. In the future universities and other institutions are not thought only for the young. People of all ages who wish to further their education, these universities and institutions are expected to become open to them. Universities and other institutions will be open to anyone who has acquired the motivation to learn and the ability to notice issues through social experience or involvement in volunteer and other activities. Besides, the increase in the number of student, both part-time and full-time, with greater depth is expected and this is thought to lead to the formation of an academic environment. Graduate study is also likely to become more available to

non-academic members of society. As higher education is an investment in human progress and prosperity, during fast social and economic change, it is especially important that universities and other institutions of higher education consider their contribution to society from abroad long-term perspective.

#### 3. Global Education versus Globalization

Globalization has become a wide spread idea in national and international dialogue in recent years. Global Education has become a widespread idea at Farleigh Dickson University. Globalization's shifting and controversial parameters make it difficult to define. It is obviously a dominant force, both positively and negatively, shaping the multiple environments in which we live. Economic forces motivate globalization and digital technologies and communications drive it, individuals and institutions are linked by globalization across the world with unprecedented interconnection and immediacy. Besides, in doing so, in some ways it democratizes and intensifies interdependence, and in other ways creates new forms of local reaction and selfdefinition. While it may spread certain freedoms, higher living standards, and a sense of international relatedness, it also threatens the globe with a conformist "universal" economy and culture rooted in North American and Western ideas and interests. Despite the ambiguities in definition and meaning, and the anxieties and backlashes it generates, globalization will remain a dominant paradigm for the foreseeable future. We have seen this fact reified in our national challenges over the past several years. Especially in America, which is so closely associated with economic and cultural globalization, the task of higher education must include the examination of and reflection on globalization as a force shaping the world in which we live. Global education, as a distinct construct from globalization, does what higher education has traditionally aimed to do: extend students" awareness of the world in which they live by opening them to the diverse heritage of human thought, action, and creativity. Global education places particular emphasis on the changes in communication and relationships among people throughout the world, highlighting such issues as human conflict, economic systems, human rights and social justice, human commonality and diversity, literatures and cultures, and the impact of the technological revolution. While it continues to depend on the traditional branches of specialist knowledge, global education seeks to weaken the boundaries between disciplines and encourages emphasis on what interdisciplinary and multidisciplinary studies can bring to the

understanding and solution of human problems. Hence, global education also implies, and our students should be taught, that not everyone around the world in fact views global education with indifference – some people may see it as a vehicle for development of globalization, which might itself be seen as the western effort to destabilize fragile balances in world economic and political systems. At a time, such as this, when we feel increasingly and often indiscriminately awash with information, and when we sense a decentralization of the traditional forms of political and intellectual authority, global education places on the ability to think critically and ethically. Next, the ability to effectively access, interpret, evaluate and apply information is important for facing a constantly changing work environment, for continuing self education, and for participation as an ethical and responsible member of a global society. A global education can also be an antidote to the sadly universal human tendency to lose track of the experiences of others as seen through their eyes. In attempting to clarify the concepts of globalization and global education, what needs to be recognized is that to show the contrast between them, to someone, it is understood in wrong way. Globalization is an inter-national and intra-national force, while global education is a teaching/learning paradigm. Thus, their areas of emphasis are in different fields. Yet global education too many around the world merely invokes the idea of globalization with all its potentially American-centric and negative attributions. Thus, one of the biggest challenges in realizing the difference is that, unlike with global education, globalization is an inherently anxietyprovoking term. While it frames the world in communal terms, it also, and more explosively, threatens many with a loss of individuality. Over 80 per cent of students said it was very or somewhat important that colleges and universities offer opportunities to interact with students from other countries. Almost three out of four students said that they believe it is important that their college offer courses on international topics. Over 70 per cent of respondents said it is important that their college offer study abroad programs. Almost nine in ten students said they were interested in gaining exposure to another culture. Just over 60 per cent said they are interesting by international education to acquire career-related experiences (ACE) (2).

#### 5. The Aim and the Importance of Global Education

The main duty of a government in the field of education is to design the educational activities that have been developed according to strategic aims and to direct them with policies suitable for the aims. Besides education is a major area of government expenditure and is a significant potential target for human resources. The local authorities of each country can state the local goal of education. Their aims can change according to the local needs and necessities and may show differences from each other. But the global education has many goals in common for every country. The aims and importance of global education can be sated as follows: -Let those who participates in educational process obtains skills of new cultures. -Develop the ability of distinguishing intercultural differences. -Aiding the people for criticizing events from global perspective. -Explain how different cultures impact the activities of organizations. -Help students realize how attitudes are shaped and how they influence the behaviours. -The language and harmony skills of the managers who will work in different cultures should be developed. -Provide the ability of working together with the people coming from different cultures. -Develop the skill of multi-sided thinking by causing them gain the cultural sensitivity and experience. -Teach how to behave according to cultural differences. -Teach how to manage multinational groups. -Develop the way of thinking from individuality to globalize.

- A. Strategic Intentions for Schools in Global World Globalization not only shapes economy or other institutions but it affects schools as well. The traditional method used in schools will be left and school leaders will have to take quite new and different responsibilities. Caldwell (1998) expresses the duties and responsibilities of school leaders in globalized world as follows:
- Leaders will create opportunities for themselves and their colleagues to obtain knowledge and understanding of societal change and of the way schools will make a contribution to well-being in a civil society.
- In all these matters, the driving force and cause will be the provision of a quality education for every student, and every strategy and every intention will be weighed against those norms.
- Sound approaches to annual planning and longer-term strategic planning are prerequisites for successful school management but a wider range of approaches in matters related to strategy will be required to continue the journey "beyond the self-managing school".

- A capacity for strategic thinking will be deeply fixed in a school, with a continuing strategic conversation the means by which shared understandings are developed as a prelude to formal planning.
- There is a high level of turbulence in the environment for education, as a result, it will be difficult to make strategic schemes and plans in many matters, so, under these circumstances, and obvious strategic intentions based on the best available information will be formed by schools as the basis for action.
- There will be recognition that sound strategy will take account of past, present and expected or preferred futures, therefore, a commitment will frame the effort to take these into account in strategic management.
- There will be a high level of harmony between learning, teaching and management cultures in the school, as detailed by a commitment to empower the individual in all related matters, thus helping to create a better world.
- Leaders will be aware that times of great success are also times of great risk, and to ensure high level of performance in achieving the mission of the school, they will work with all in the school community to search for, even with some mistakes, new opportunities.
- It should will be known that success in leadership in times of continuous and often turbulent change in as much a matter of discovering self as discovering strategy, individually and collectively, there will be commitment to address to emotional well-being of the leadership team.
- There will be commitment to leadership and management of opinions, these as part of the heroic quest for learning in a civil society in which all in the school community are engaged and empowered.

# 6. Thoughts for the Future

With the meaning of globalization new attitudes and values are coming into force. People need to learn new concepts and have to adopt themselves new ways of life. Each country makes new rules in order to educate the students according to the necessities of global world. For example

remarks that as internationalization progresses, Japan needs, for instance, to make an international contribution in education and research that matches its expanding economic power and the emerging level of its scientific research. By conducting vigorous educational and research activities in line with the progress of scientific research, universities are expected to inform the world of their original research achievements and to train people who can work successfully in the international community. When taken into consideration from that point of view it can clearly be seen that to develop exchange programs of teachers and students and to improve admission systems for foreign students gain importance. (Benking, 1997) Inter-American Education Program(7) sets important and major progressive objectives for future programs in the framework of globalization. (Kuehn, 1999) writes that the objectives are to: a-Support for policies to "generalize access to a quality education to all sectors of the population," with special concern for at-risk groups. b-Develop programs that support "socio-economically atrisk boys, girls, youth and adults." c-An educational policy should be promoted that considers human rights, education for peace and democratic values, equality of opportunity and rights between men and women, and gender quality. d-Develop collaboration of institutions dedicated to educational development as related to citizenship, multicultural societies and sustainable development. e-Promote the consolidation and collaboration of institutions dedicated to indigenous education. f-Provide support for the development of the educational systems of countries with especially difficult economic circumstances. From the point of teacher education in globalized world teacher education reforms are thought to have the competence to overcome resistance from the ancient structures and conditions which shape practice and destabilize them. According to new perspectives of global learning, teacher education program will have to be designed. Teacher education reforms have to be in harmony with the policy formation regulations. The main goal is human resource development to meet the manpower needs of a growing economy. Within the global learning conditions, it is also aimed at helping.

#### 7. Conclusion

Globalization has had many obvious effects on educational and communication systems change the way education is delivered as well as roles played by both teachers and students. The development of this technology is facilitating the transition from an industrial based society to an information-based one. At the same time, there is a dark side to globalization and to the very openness of the new information systems; while the richest countries grow richer, the poor are becoming poorer. Thus, information and education gaps between the rich and the poor are widening not narrowing; economic crises, trade imbalances and structural adjustments have caused a moral crisis in many countries, damaging and cutting the basic social and cultural fabric of many families and communities apart, resulting in increasing youth unemployment, suicide, violence, racism and drug abuse and antisocial behaviour form schools. In the 21st century, education systems face the dual challenge of equipping students with the new knowledge, skills and values needed to be competitive in a global market while at the same time producing graduates who are responsible adults, good citizens both of their country and of the world. Thus, globalization challenges us to rethink not only how much education is needed but also its final goal.

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# Customer Feedback on Banking Services: A Case of Tamilnad Mercantile Bank Ltd (TMB) Services

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#### Abstract

The research study was aimed at exploring the satisfaction level of the customers for Tamilnad Mercantile Bank Ltd., Ghaziabad branch and their general perception regarding delivery of services at TMB Bank. The secondary objectives were to cull out customer awareness regarding the Bank's products, interest level of customer regarding different schemes of bank, knowing preference of customers regarding extra services like Net Banking, Mobile Banking, Para Banking etc. Respondents were selected using convenience sampling technique. Structured questionnaire was administered on the respondents. Simple percentage analysis and weighted average method were used for analyzing the collected data. Majority of the respondents were found to be satisfied with the bank's promptness of services, overall efficiency of the bank and friendliness and courtesy of the managers. A few areas of dissatisfaction were also identified. They were convenience of ATM facilities, mailing service of the bank and knowledge of services of the customer service officers. Several practical suggestions were elicited on improving the bank services and bank customer relationships. The data received suggests that the Average Quarterly Balance of Savings Bank Account and Current Account may be reduced for the convenience of the customers. It was suggested that the organization could work to improve their product knowledge about the services offered by their bank.

#### Introduction

India has a well developed banking system. Indian banks have played a significant role in the development of Indian economy by inculcating the habit of saving in Indians and by lending finance to Indian industry. Indian banks can be broadly classified into nationalized banks/public sector banks, private banks and foreign banks. Banking System in India is dominated by nationalized banks. The major objective behind nationalization was to spread banking

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infrastructure in rural areas and make available cheap finance to Indian farmers. All the banks in India were earlier private banks. After nationalization of banks in 1969 public sector banks came to occupy dominant position and role in the banking structure. Private sector banking in India received a fillip in 1994 when Reserve Bank of India encouraged setting up of private banks as part of its policy of liberalization of the Indian Banking Industry. Private banks have played a major role in the development of Indian banking industry. They have made banking more efficient and customer friendly. In the process they have aroused public sector banks to rise above their self satisfaction mode and compelled them to embrace competition by becoming more competitive. Foreign banks have introduced latest technology and latest banking practices in India. They have served to facilitate Indian banking system become more competitive and efficient.

**Tamilnad Mercantile Bank Ltd:** Tamilnad Mercantile Bank Ltd [TMB] is a premier old Private Sector Schedule Commercial Bank. The Bank has a long cherished history of more than 93 years of successful banking with continuous profit record and strong financial fundamentals. The bank has 430 branches, 880 Automated Teller Machines, 9 Regional Offices and geographical presence in 12 states and 4 Union Territories. TMB serves its more than 3 million delighted customers. All the branches are fully computerized and inter connected through Core Banking Software "FINACLE" of INFOSYS and offering Anywhere Banking/Internet Banking/Mobile Banking/RTGS/NEFT/WUMT facilities. Tamilnad Mercantile Bank Ltd., since its inception has focused its attention on the customers and the bank is known for its personalized service. The team of management and staff members of the bank are in the the practice of meeting people from various walks of life and address their requirements on a regular basis.

**Review of Literature:** Moutinho, L. & Smith, A. (2000) introduced a model indicating an important role for the evaluation of bank customers' attitudes towards both human tellers and automated banking in mediating the ease of banking factor/perceived satisfaction linkage. The model's explicit consideration of the effects of bank customer attitudes towards human tellers and automation provides additional explanation on how the perceived trend towards ease of banking influences bank overall satisfaction, switching and loyalty behaviour.

Bloemer J, Brijs T, Swinnen G & Vanhoof K (2002), studied dissatisfaction of customers and measures for dissatisfaction management. They proposed data mining technique called "characteristic rules" to identify latently dissatisfied customers of a Belgian Bank.

Patricio L, Raymond P. Fisk & Falcao e Cunha (2003), presented the results on qualitative study of a Portuguese bank regarding customer use of internet integrated in a multi-channel offering that includes high street branches, telephone banking and automatic teller machines. The results show that performance evaluation is a key factor influencing channel use. The study indicated that, in a multi-channel context, customer satisfaction with internet services depends not only on the performance of this channel in isolation, but also on how it contributes to satisfaction with the overall service offering.

Aldlaigan A & Buttle F (2005) investigated the different types of attachment that customers develop towards retail banks. A statistically valid and reliable scale was introduced to measures the forms of attachment. This scale can be used to identify customer organizational attachment profiles that transcend or complement customer satisfaction and provide a basis for relationship longevity.

Ndubisi N.O & Wah (2005) showed that five key dimensions- competence, communication, conflict handling, trust and relationship quality, discriminate between customers in terms of perceived relationship quality and customers satisfaction.

Ndubisi & Ling (2005) examined the post dissatisfaction behaviour of Malaysian consumers visà-vis their compliant behaviour and defection. The research also investigates the moderating effect of gender and income in this relationship. This study reveals that lower income customers are more likely to defect without a word to the bank than higher income Malaysian bank customers. It also found that income levels may affect a customer expression of dissatisfaction.

Ting (2006) examined the satisfaction model in a more complex manner to capture the variations of the satisfaction construct better. The researcher suggested that there might be "U" shaped relationship between satisfaction perception and word-of-mouth referrals when there is a change in ownership. The paper suggested how satisfaction construct should be measured in a non-linear form with interaction in a different cultural context as in the banking sector in Malaysia.

**Scope of The Project:** The project was done for Tamilnad Mercantile Bank Ltd., Ghaziabad Branch. The study was aimed to enable the concerned bank branch procure information about

the satisfaction level of the customers and results were expected to improve the services provided by this branch.

**Objectives Of The Study:** The objectives of the study were:

- To know the customer satisfaction level and their perception regarding TMB.
- To know the customer awareness regarding the Bank's Products
- To know the level of interest of customer regarding the different schemes of bank
- To know the preference of customer regarding the extra services like Net Banking, Mobile Banking, Para Banking etc.,
- To know the problems encountered by the customer during bank interactions.

# Limitations of the Study

The study was restricted to Tamilnad Mercantile Bank Ltd. Ghaziabad branch only. The findings may not be fully applicable for other TMB Branches. The population consists of the customers (Account holders) of the branch till the month of March 2014 only. The sample size for the customers has been limited to 100. Result may vary if the research was conducted in a large scale. The survey was purely based on opinion of customers, which may be biased at times.

# **Research Methodology**

**Population:** The investigation was conducted in the city of Ghaziabad, TMB Bank, with 100 customers as respondent. The profile of the selected customers was

Customers - Non-customers to the Bank,

Educated - Uneducated customers,

Youngsters - Senior Citizens customers,

Male – Female customers and so on.

Sample Size: A sample of 100 customers of the branch were interviewed.

**Sampling Technique:** The sampling technique adopted for the study was convenience sampling.

## **Data Collection Method**

The primary data was collected by means of a survey. Questionnaires was prepared and administered to customers of the banks at two branches. The questionnaire comprised of 20 questions reflecting on the type and quality of services provided by the bank to the customers. A well structured questionnaire was used for this study. The types of questions used in the questionnaire were

- > Open-ended questions
- > Multiple-choice questions and
- > Dichotomous questions

**Tools for Analysis-** The response of the customer was recorded on a grade scale of strongly disagree, disagree, uncertain, agree and strongly agree for each question. The collected data was edited and then consolidated by using simple statistical tools. Then, it was presented in the form of tables and figures. The statistical tools employed are

- Percentage Analysis
- > Weighted Average Analysis

#### Data Analysis And Interpretation

#### **Profile of Sample**

S.No.	Age	No. of Respondent	Percentage	
1.	Below 35 years	37	36.7	
2.	35-45 years	45	45.0	
3.	Above 45 years	18	18.3	
	Total	100	100.0	

#### AGE GROUP OF THE RESPONDENTS

#### **GENDER OF THE RESPONDENTS**

S.No.	Gender	No. of Respondent	Percentage	
1.	Male	70	70	
2.	Female	30	30	
	Total	100	100.0	

# Findings

#### TABLE NO. 1

#### FREQUENCY OF VISIT TO BRANCH IN THE LAST THREE MONTHS

S.No.	Opinion	No. of Respondent	Percentage
1.	Below 5 times	9	8.3
2.	6-10 times	23	23.3
3.	11-15 times	27	26.7
4.	16-20 times	23	23.3
5.	More than 20 times	18	18.3
	Total	100	100.0

# TABLE NO. 2OPINION ON PROMPTNESS OF SERVICE

S.No.	Opinion No. of Respondent		Percentage
1.	Always	67	66.7
2.	Most often	28	28.3
3.	Often	3	3.3
4.	Some times	2	1.7
5.	Rarely	0	0.0
	Total	100	100.0

#### TABLE NO. 3

S.No.	Opinion	No. of Respondent	Percentage
1.	Very good	23	23.3
2.	Good	62	61.7
3.	Fair	5	5.0
4.	Poor	10	10.0
5.	Very poor	0	0.0
	Total	100	100.0

#### **OPINION ON QUALITY OF SERVICE**

#### TABLE NO. 4

#### SATISFACTION LEVEL WITH CUSTOMER SERVICE OFFICERS

Factors	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	Weightage score	Rank
Friendliness and courtesy	0	45	48	7	0	203	v
Knowledge of services	4	58	18	18	2	206	III
Willingness to listen and respond to their need	7	80	13	0	0	236	I
Professional appearance	0	43	57	0	0	206	Ш
Overall performance	3	62	25	10	0	215	II

# TABLE NO. 5SATISFACTION LEVEL WITH MANAGERS

Factors	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	Weightage score	Rank
Friendliness and courtesy	22	73	4	1	0	249	Ι
Knowledge of services	12	73	5	12	0	230	IV
Willingness to listen and respond to your need	17	62	18	3	0	235	III
Professional appearance	5	47	48	0	0	214	V
Availability to customers when needed	3	65	32	0	0	223	VI
Overall performance	15	75	3	7	0	239	II

# TABLE NO. 6

#### LEVEL OF SATISFACTION TOWARDS SERVICES EXPECTED

Factors	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
Convenience of ATM's	27	43	8	22	0
	(26.7%)	(43.3%)	(8.3%)	(21.7%)	0
Timings of the bank	5	53	42	0	0
	(5.0%)	(53.3%)	(41.7%)	0	0
Over all efficiency of service	7	78	8	7	0
	(6.7%)	(78.3%)	(8.3%)	(6.7%)	0
Availability of information	3	67	30	0	0
materials & documentation	(3.3%)	(66.7%)	(30.0%)	Ū	0
Clean and well -maintained	37	63	0	0	0
facilities	(36.7%)	(63.3%)			0



TABLE NO. 8 OPINION ON RECEIPT OF QUARTERLY STATEMENTS

S.No.	Opinion	No. of Respondent	Percentage	
1.	Received	85	85.0	
2.	Not received	15	15.0	
	Total	100	100.0	

TABLE NO. 9RESPONDENTS OPINION REGARD TO THE QUARTERLY STATEMENTS

Factors	Very Good	Good	Fair	Poor	Very Poor
Easiness to read and understand	10 (9.8%)	86 (86.3%)	4 (3.9%)	0	0
Accuracy	8 (7.8%)	76 (76.5%)	16 (15.7%)	0	0
Completeness	8 (7.8%)	76 (76.5%)	16 (15.7%)	0	0

#### TABLE NO. 10

#### LOAN APPLIED IN THE LAST YEAR

S.No.	Opinion	No. of Respondent	Percentage	
1.	Applied	23	23.3	
2.	Not applied	77	76.7	
	Total	100	100.0	

# TABLE NO. 11LEVEL OF SATISFACTION TOWARDS LENDING OFFICERS

Factors	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	
Friendliness and courtesy	3	18	2	0	0	
	(14.3%)	(78.6%)	(7.1)	U	U	
Knowledge of services and	0	18	3	0	0	
products	U	(78.6%)	(21.4)	U	U	
Willingness to listen and	0	18	3	0	0	
respond to your need	0	(78.6%)	(21.4)	U	U	
Professional appearance	0	12	12	0	0	
	U	(50.0)	(50.0)	U	U	
Availability to customers	0	22	0	0	0	
when needed	U	(100.0)	U	U	U	
Overall performance	0	22	0	0	0	
	U	(100.0)	U	U	U	

# TABLENO. 12FREQUENCY OF CONTACTING THE BRANCH BY PHONE

S.No.	Opinion	No. of Respondent	Percentage
1.	Never	23	23.3
2.	Below 3 times	25	25.0
3.	4-9 times	27	26.7
4.	10-19 times	22	21.7
5.	20 or more times	3	3.3
	Total	100	100.0

#### TABLE NO. 13

#### LEVEL OF SATISFACTION - TIME TAKEN TO HANDLE THE CALL

S.No.	Level of Satisfaction	No. of Respondent	Percentage
1.	Very satisfied	7	6.5
2.	Satisfied	67	67.4
3.	Neutral	24	23.9
4.	Dissatisfied	2	2.2
5.	Very dissatisfied	0	0.0
	Total	100	100

# TABLE NO. 14LEVEL OF SATISFACTION TOWARDS TELEPHONE BANKING

Factors	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	Weightage score	Rank
Friendliness and courtesy	15	74	6	5	0	184	Ι
Call handled promptly	9	78	9	4	0	180	III
Willingness to listen and respond to your need	11	70	15	4	0	178	v
Quickly connected to the right person	4	70	20	6	0	171	VI
Availability to customers when needed	13	65	20	2	0	179	IV
Overall performance	15	72	9	4	0	183	II

S.No.	Opinion	No. of Respondent	Percentage
1.	Highly likely	25	25.0
2.	Likely	52	51.7
3.	Neutral	17	16.7
4.	Unlikely	6	6.6
5.	Highly Unlikely	0	0
	Total	100	100.0

# TABLE NO. 15 RECOMMENDATION OF THIS BRANCH TO OTHERS

# FINDINGS

- Around 27% of the respondents have visited the branch for 11-15 times in the last 3 months.
- ▲ Majority (66.7%) of the respondents are always served promptly.
- Majority (61.7%) of the respondents feel that the quality of service provided by the customer service officers is good.
- Most of the respondents are satisfied with willingness of the customer service officers respond to their need.
- Most of the respondents are satisfied with friendliness and courtesy of the managers.
- Around 78% of the respondents are satisfied with overall efficiency of services of the branch.
- Most (96.7%) of the respondents have received mail from TMB BANK services.
- Most (85%) of the respondents have received quarterly statement.
- Around 86% of the respondents feel that the presentation of data in quarterly statement is good.

- ▲ Majority of the respondents have not applied for the loan in the last year.
- Majority of the respondents are satisfied with overall performance of the lending officers.
- Around 27% of the respondents have contacted the branch by phone 4-9 times in the last 3 months.
- ▲ Majority (67.4%) of the respondents are satisfied with time taken for handling the call.
- ▲ Majority (51.7%) of the respondents have recommended the branch to others.

# Suggestions

Though the customers seemed satisfied with majority of the points investigated, there are a few points on which satisfaction level of the customers is found to be low. The organization may take steps to improve them as given below,

- Nearly most of the respondents are not satisfied with the knowledge of services of the customer service officers. The organization may concentrate to improve their product knowledge about the services of the Bank.
- The organization may impart more training to the customer service officers for bettering their personal relations with customers.
- The Average Quarterly Balance (AQB) of Savings Bank Account (SB) and Current Account (CA) may be reduced for the convenience of the customers.
- ATM facilities of the branch may be improved.
- The timings of the bank may be increased for the benefit of the customers.
- Most of the customers were complaining about the delay in mailing services of the branch requiring improvement in mailing service.

**Results and Discussion:** Customer satisfaction is vital for an organization. If the customer satisfaction in an organization is high it is bound to increase the customer base and brand name of the organization. Otherwise, it will adversely affect the customer base of the branch and also

the brand name. This small scale research study revealed that customers were satisfied on majority of factors. The factors are promptness of services, overall efficiency of the bank and friendliness and courtesy of the managers. In some areas the satisfaction level is found to be poor. Suitable suggestions are also provided to increase the satisfaction level in those areas. The findings and suggestions provided by this analysis if brought to application should help to increase the satisfaction level of customers to certain extent. It may also serve to improve the quality of the product and services provided by the bank. For increased validity this study could be replicated on a larger sample and other branches incorporating other elements like regional factors etc. into the research design such that different theses referred to in the literature cited in literature review portion of this paper could be addressed. The issues explored could be more scientifically investigated in the Indian context to yield reliability.

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# Transition from Paper Money to E Money as an Impact of Demonetization: A New Era in the Digital Sector

# Shashank Kumar Shrivastava<sup>1</sup>

# Abstract

The digital payment system changed the nature of banking transactions in India. Ten years earlier if we conducted any financial transaction through banks; it required at least 5 to 10 days for transfer of the payments. But due to digital payment system, now payments are made within fraction of seconds. This revolution did not occur in one day it happened over a period of time. The present era is entering into a new pace in payment system by using digital wallets loaded with coupons and offers. The Digital India program is a flagship program of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy. Faceless, Paperless, Cashless, is one of professed role of Digital India. Considering the benefits like transparency in transactions, scope for curtailing parallel economy and improving the ease of business, transformation towards digital payments is a welcome change. The present paper analyses the adoption level of these digital payment systems by customers with reference to outcomes of Demonetization. Primary data was collected from 135 respondents. The data collected through the questionnaire were analyzed statistically by using simple percentage analysis technique. The study showed that with the current government's enhanced initiatives to develop digital payment system in India there is remarkable growth witnessed in digital payments in last three years subsequent to demonetization. People are proactively adopting new modes of digital payments and are also comfortable with the usage of new digital payment modes over old digital payment modes. The awareness of digital transactions is seen to have a positive growth among all sections of the society and India's Digital Sector Economy is on a boost since last few years especially after demonetization.

# Introduction

Payment system plays an important role in driving the economic and social development of the country. The last decade has seen tremendous growth in use of internet and mobile phone in India. Increasing use of internet, mobile penetration and government initiative such as Digital

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India are acting as catalyst which is leading to exponential growth in use of digital payment. Electronics Consumer transaction made at point of sale (POS) for services and products either through internet banking or mobile banking using smart phone or card payment fall in the purview of digital payment. The Global payment landscape is growing at an amazing pace especially with 2015 – 2017 being considered a crunch period in the payment history. Due to the Digital technology revolution, customer expectations have increased, there is entry of nontraditional players in to the market, and there are also regulations enabling these cashless transactions. Led by the evolution of digital technologies, payments are no longer the strength of banks. Evolving customer behaviors needs, and preferences have led to new participants entering the arena at an exponential pace. Non- bank institutions are capturing the lime light and setting new consumer expectations like one click payments triggering a shift in the value chain.

The Payment and Settlement Act, 2007 has defined Digital Payments as an electronic funds transfer means any transfer of funds which is initiated by a person by way of instruction, authorization or order to a bank to debit or credit an account maintained with that bank through electronic means and includes point of sale transfers, automated teller machine transactions, direct deposits or withdrawal of funds, transfers initiated by telephone, internet and, card payment. The pace of move to digital payments has significantly increased with the strong thrust towards cashless economy in India. In 2016 after demonetization decision was taken by Government of India, digital payment concept has seen increased proportions. The shift would not have been possible without several factors that affect the growth and creation of digitalization including an ever increasing mobile phone penetration, low cost of service delivery, banks discouraging customers to visit branches, unorganized support to digital economy and demonetization. Due to the wide spread of internet based shopping trends and banking; digital payment system grew fast in India. With technology development, many digital payment transactions.

Digital India campaign was aimed to promote digital payment system and cashless economy, but actual effect on digital payment was realized after the demonetization action. Demonetisation left with not much choice but to employ digital payment as an alternate system to cash and thus following demonetization digital payment continuously increased. It is found

that under NPCI not only total digital payment transactions but in all individual mode of digital payment i.e. NFS Inter Bank ATM Cash Withdrawal, NACH- National Automated Clearing House, CTS Cheque Clearing (Processed Volume), IMPS, RuPay Card usage at (POS), RuPay Card usage at (eCom) and AEPS (Inter Bank) Transactions over Micro ATM (e.g. Cash withdrawal/Cash Deposit) there is significant increase in volume in terms of value in rupees after demonetization. According to a 2015 PwC report, 98 percent of all transactions by volume happen in cash while 68 percent of the total value of transactions is done in cash. Owing to this The World Bank in July, 2010 estimated the size of the shadow economy for India at 20.7% of the GDP in 1999 and rising to 23.2% in 2007 (averaging 22.4% for the period 1999-2006). Considering the entire economy of India as a whole, demonetization is assumed to make most of the transactions to be done through the formal banking sector. This should increase transparency with people and corporate paying tax properly. Income tax department reported only 4 percent of the individuals pay income tax earlier while this figure increased to 28 percent. Demonetization should have helped to achieve this target of the Income tax department. When black money within India gets curbed, it will result in the overall economic development of the nation. No doubt demonetization proved to a boon to digital transactions and e-wallets and there was significant increase in use of BHIM App and Aadhar enabled services. The exorbitant increase in the number of Point of Sale (PoS) machines which reached 1.6 million in 20 year, jumped by 62% in the six month from October 2016 to April 2017. According to NITI Aayog digital transactions increased by 23 times more from 2.80 thousands to 63.80 thousand with value of 2,425 crore till March 2017. Aadhar enabled transitions increased from 2.5 crore in November 2016 to 5 crore in March 2017. In RTGS & paper clearing uses, decline was seen from 16004194 crore to 13861415 crore & 682194 to 660305 crore respectively from the month July 2019 to Oct 2019. Digital payment especially Retail payment has been growing speedily in India. According to RBI data, Volume of Financial & Non-Financial transaction was growing rapidly. In 2014-15, financial transaction volume was 3,709.46 million; they increased up to 16,799.46 million. Volume of non-financial transaction increased from 720.36 million to 7960.42 million in 2014 to 2019. At present most used digital payment mode are UPI and Rupay Card respectively. The uses of UPI are tremendously increasing in India. As per data, taking base year 2016-17 use of UPI has growing 98.05% in 2017-18 and 82.90% in 2018-19. It is clear that, Digital payment system in India is growing at a rapid pace.

## Objectives

- To Study Customer Perception about Digital Transactions.
- To Study the knowledge of Digital Transaction that people have now a days.
- To study the behavioral change in the digital transaction after demonetization

### Literature Review

Brito and Hartley (1995) in their research found that consumers prefer purchasing through credit cards because of its ease and convenience of use irrespective of its rate of interest. They found that when consumers use credit cards as a mode of financing, credit cards compete with bank loans and other forms of financing. Handelsman and Munson (1989) commented that switching behaviors from credit card to cash payment among ethnically diverse retail customers shows that the credit card sales constitute an important revenue source for many retailers. Their ever increasing use and evaluation into other forms such as debit and electron cards demand that retailers gain a more complete understanding of how they are used by diverse consumer segments. Roy, & Sinha (2014) reported that E- payment system in India has shown tremendous growth, but still there has lot to be done to increase its usage. Still 90% of the transactions are cash based. They found Innovation, incentive; customer convenience and legal framework are the four factors which contribute to strengthen the E- payment system. Vidya Shree DV, Yamuna N. and Nitua Shree G (2015) in the article entitled "A Study on new Dynamics" in Digital Payment System – with special reference to Paytm and Pay U Money found that, people are more aware about the online payments through mobile applications and there is a wider increase in growth rate. The study also found that, Paytm and Pay U money is providing easy payment structures compared to Digital payment system. Shah (2017) reported that The Government forced to digital transaction by demonetization of high value currency notes and providing various initiatives, still bulk of transactions are cash based and cash is still only medium for financial transactions for Indian consumers, hence achieving a 100% cashless society will not be possible in near future, but one can always start from a less cash society and then move towards becoming mostly cashless. Mamta, Tyagi and Shukla (2016) in the article entitled "The Study of Electronic Payment Systems" aimed to identify the issues and challenges of electronic payment systems and offer some solutions to improve the e-payment system quality. They concluded that the successful implementations of electronic payment systems depends on how the security and privacy dimensions perceived by consumers as well as sellers are popularly managed, in turn would improve the market confidence in the system. Goriparthi and Tiwari (2017) have found demonetization as positive step ahead to dream of Digital India. They also argued policy direction by the government highlights the tremendous growth possibilities for the digital payments sector that is only just started to establish itself. They also emphasized that demonetization has also in a way dismantled some of the traditional barriers preventing Indians from adopting digital payment solutions such as the habit of using cash, and anxiety over fraud and network security. Nayak (2017) reported State Bank of India's research department which found that Demonetisation has help the nation leapfrogged three years ahead in digitization and this trend is also expected to lower inflation. They had mainly reported total debit and credit card transactions through PoS (point of sale), between April'16 and April'17 it rose 88% and transaction through various prepaid instruments – mobile wallet, PPI cards, and paper vouchers and mobile banking rose 122% in the same period.

### **Research Methodology**

- Primary Research: The research data collection methodology used in the study is structured questionnaires which were floated with the help of Google forms among different regions of India and the data interpretation is done on the basis of responses received. The responses from 135 respondents were studied and analyzed using the simple percentage analysis.
- Secondary Research: The descriptive research information used in this study has been collected from various websites, newspaper articles, blogs, research papers and government established data.

#### **Secondary Data Findings**

 UPI- UPI has been taking some share away from more traditional modes of digital payments such as cards and net banking. The total volume of UPI transactions in Q2 2019 was 2.2 billion, a 263% increase from Q2 of the previous year. In terms of value, UPI clocked INR 4.4 trillion, up 336% from Q2 of the previous year.





It is worth noting that Paytm, PhonePe and Google Pay collectively process more than 90% of UPI transactions, of which Google Pay leads in terms of both transactions volume and transactions amount. Paytm has shifted its focus from cash backs-led P2P transactions and committed that money towards achieving growth in offline merchant payments. Also, with the debut of players such as Amazon Pay, Mi Pay, and the impending mass rollout of WhatsApp Pay; it looks like the UPI ecosystem would most likely continue its momentum.

Cards Issuance- There are about 837 million debit cards and about 49 million credit cards in circulation. It is interesting to note that between June 2018 and June 2019, there was an addition of about 10 million credit cards and reduction of about 107 million debit cards. While the rise in credit cards may be attributed to growing digital payments and the expansion of retail borrowers in the market, the fall in debit cards could be due to the mass closure of zero balance accounts.





Source: Reserve Bank of India

The merchant categories with the highest volume and value of transactions in Q2 2019 were Grocery, Restaurants, Petrol Stations, Apparel Stores and Specialty Retail which accounted for about 65% volume of transactions and about 40% value of transactions. It is interesting to note that while jewelry stores accounted for only 2% of total volume of transactions, they accounted for 9% of total value of transactions. The top categories remained the same for both credit and debit card transactions.

Mobile Wallets- The Reserve Bank of India has permitted 46 entities to launch their Prepaid Payment Instruments (PPI) for consumers and according to their latest data, the number of transactions done on mobile wallets in Q2 2019 was 1.08 billion, an increase of 18.4% over Q2 of previous year while the value of transactions in Q2 2019 was INR 474 billion, an increase of 17.5% over Q2 of the previous year.



Fig. 3- Mobile Wallets Transactions Volume & Value (from June 2018- June 2019)

Source: Reserve Bank of India

The growth of mobile wallets has not taken off much following the emergence of UPI. Its struggles come in direct proportion to the unprecedented growth of UPI. While there was an 18.4% increase in the number of transactions done on mobile wallets (1.08 billion) in Q2 2019, the increase in the number of transactions done on UPI (2.27 billion) over the same period was a massive 263%. In absolute terms as well, transactions done using mobile wallets in Q2 2019 (INR 474 billion) are only 10% of the size of the total transaction value on the UPI platform (INR 4.4 trillion). It is likely that the growth in UPI is coming at the expense of wallet transactions.



#### Fig. 4- Mobile Wallets vs. UPI (from June 2018- June 2019)

Source: Reserve Bank of India

# Sample Information Profile Table 1 Respondents Profile: Gender

Male	74
Female	61
Total	135

(Source: Primary Data)

Table 2Respondents Profile: Age Group

15-20	9
21-30	107
31-40	8
41-55	11
55 & Above	0
Total	135

(Source: Primary Data)

Table 3Respondents Profile: Education

Illiterate	0
High School	0
Intermediate	3
Graduation	54
Post Graduation	78
Total	135

(Source: Primary Data)



Married	20
Unmarried	115
Total	135

(Source: Primary Data)

Table 5Respondents Profile: Profession

Service	24
Student	106
House Wife	3
Business	1
Social Worker	1
Total	135

(Source: Primary Data)
# Result (Data Analysis)



Use of Digital Payments mode for the transactions

Preference of Payment (Cash Transactions or Digital Payments)



(Source: Primary Data)



Modes of digital payment often used (Fig. 3)

(Source: Primary Data)

Places where Digital Payment Modes are Often Used (Fig. 4)



(Source: Primary Data)



Features that make people stable to their digital payment app (Fig. 5)

Change in people's digital payment app to another app (Fig. 6)



<sup>(</sup>Source: Primary Data)



Threats that deter people from using digital mode of transaction (Fig. 7)

Suggesting others to use the digital payment system (Fig. 8)



(Source: Primary Data)

# Data Interpretation

1. Overall 93% people have already used digital payment modes of transaction. Among this more than 52% are males and 41% are females, most of them are students between the age group of 21-30 with the highest educational qualification of post graduation

- 2. Overall 81% people give preference to digital mode of transactions over the cash mode of transaction. Among this more than 50% are males and 32% are females most of them are students between the age group of 21-30 with the highest educational qualification of post graduation
- PayTM and Google Pay are the most often used digital payment app with 29% & 24% people using them as been compared to Phone Pay, BHIM, MobiKwik and Banks Net Banking.
- 4. Money Transfer, online shopping and recharges are the most used places where digital transactions are done as been compared to Local Stores and Ticket Bookings.
- 5. Easy Process, Speed and discounts and offers are some the main features that makes a person stable to the digital mode of transaction in context of the app being used by them.
- 6. 75% people are not in the favor of changing their digital payment app due to the features they are getting in their apps.
- 7. Security is the main threat among people which stops them from using the digital mode of payments.
- 8. 80% of the people are in favor of suggesting the digital mode of payment to others.

#### Suggestions

- 1. Government can ensure to the public that the operation of digital payment transaction is free from transactions cost which in turn helps the customers of various transaction to purchase via on line mode.
- 2. Government could give concession to the retailers, merchants and other suppliers who sell the products and services via digital mode and this in turn will encourage all the merchants to become e-merchants.
- 3. Training Programs could be organized by the government to train all the people to make use of the digital payments.
- Government can give continuous media coverage through TV news/ shows, Radio or social networking or newspapers/magazines about the benefits of digital payments to the society and for the individual.

5. Customers must be able to comply with the terms and conditions of Digital payment methods, notify the issuer of the loss/theft of the Electronic Payment Instrument (EPI) immediately and keep track on the balance, especially after each transactions.

#### Conclusion

The first and foremost issue of literacy needs to be tackled by the government and for that we need to make our education system strong right from the starting. For the elder people, bank personals need to play very important role. There is a need to set up information centers from where any kind of query regarding programs, policies, new applications, or any technological information can be taken. Moreover the educated youths should also play a role by helping others and passing on their knowledge to those who cannot perform their task on their own. Another issue of cybercrimes and cyber security need to be tackled by the implementing and creating more strict rules regarding cyber security. Education and training in terms now and latest technology for its advancement in urban as well rural areas can help the economy to be digitalized with its use in everyday life. Banking sector could also initiate in this training policy by giving knowledge and supporting people with less awareness or no knowledge in relation to its use can leads to a drastic change by adoption of digital payment system by people with its full knowledge in their everyday life like withdrawal of cash, deposit of cash and cheque.

Digital payment is one of the empowering systems in India promoting digital India started by our honorable Prime Minister Narendra Modi, which leads to transparency of cash in the country and directly control the black money in India by tax payment and transparent cash flow of every individual. Digital payment helps India in every sector by providing security and safety in relation to cash and also by advancing the lifestyle by adoption of latest technologies for globalization and modernization of our country which leads to the development. All the steps and policies creation by government of India helps Indian society to get knowledge and awareness. Indian government taking all the steps and policies as digital India, digitalization, demonetization, better infrastructure etc. leads to the development of India. So, Indian society should also help government to adopt these system and policies as per Indian for our nation development and growth. Even slowly and gradually change is taking place but how much time it will take it cannot be judged at this hour when technology and digital payment market has just started in the country.

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# **Internet of Things: Oppositions and Applications**

#### Abhimanyu Ahluwalia<sup>1</sup>

#### Abstract

As the Internet of Things (IoT) gradually evolves as the later phase in the evolution of the Internet, it becomes critical to understand the various potential applications of IoT and the research challenges associated with those applications. From Smart Cities to Healthcare, Smart Agriculture, Logistics and Retailing to Smart Living and Smart Environments, IoT is expected to invade virtually every aspect of daily life. Although the current IoT technologies enabling have improved a lot in recent years, there are still numerous issues that require attention. Since the concept of IoT emerges from heterogeneous technologies, there are inevitably many challenges to research. The fact that the IoT is so expansive, affecting virtually every area of our lives, makes it a significant research topic for studies in various related fields, such as information technology and computer science. IoT is paving the way for new dimensions in research. This document presents the recent development of IoT technologies and discusses future applications and research challenges.

**Keywords:** Internet of Things; IoT applications; IoT challenges; future of technologies; smart living; smart environment; smart agriculture.

#### Introduction

The Internet can be described as the communication network that connects people to information, while the Internet of Things (IoT) is a networked system of differently addressable physical objects with varying degrees of processing capacity , detection and operation that the ability to interoperate and communicate over the Internet as a common platform [1]. The main objective of Internet of things is to allow objects to connect to other objects, people, at any time or anywhere through any network, route or service. The Internet of Things (IoT) is gradually being viewed as the next phase in the evolution of the Internet. IoT will allow connecting ordinary devices to the Internet to achieve a myriad of different goals. Currently, it is estimated that are

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only 0.6% of the devices that can be part of the IoT, so far are connected [2]. However, by 2020, more than 50 billion devices are expected to have an internet connection.

As the Internet continues to evolve, it has become more than a simple computer network, but rather a network of different devices, while the IoT serves as a network of several "connected" devices, a network of networks [3], such as shown in Fig. 1. Today, devices such as smartphones, vehicles, industrial systems, cameras, toys, buildings, appliances, industrial systems and many others can share information over the Internet. Regardless of their size and functions, these devices can perform intelligent reorganization, tracking, positioning, control, real-time monitoring, and process control. In recent years, there has been a significant roll-out of Internet-compatible devices. Although its most significant commercial effect was observed in the field of consumer electronics; that is to say, especially the smartphone revolution and the interest in wearable devices (watches, headphones, etc.), connecting people has simply become a fragment of a larger movement towards the association of the digital world and physical world.

With this in mind, the Internet of Things (IoT) is expected to continue to expand its reach in terms of the devices and functions it can perform. This is shown by the ambiguity in the expression of "things", which makes it difficult to delineate the increasing limits of IoT. As business success continues, the IoT consistently offers an almost limitless range of opportunities, not only in business, but also in research. Consequently, the second study addresses the different potential application areas of the IoT domains and the research challenges associated with these applications. In this context, the Internet of Things (IoT) is expected to expand its reach relative to. It continues to expand the number of devices and functions it can perform. This is shown by the ambiguity in the expression of "things", which makes it difficult to delineate the increasing limits of IoT.

As business success continues, the IoT consistently offers an almost limitless range of opportunities, not only in business, but also in research. Consequently, the second study addresses the various potential application areas of the IoT domains and the research challenges associated with these applications.

## Possible Areas of Application of IoT

The possible applications of the Internet of Things are not only numerous, but also very diverse,

since they permeate practically all aspects of the daily lives of people, institutions and society. According to [5], IoT applications cover wide areas, including the manufacturing or industrial sectors, health, agriculture, smart cities, security and emergencies among many others.

A. Smart cities According to [6], the IoT plays a crucial role in improving the intelligence of cities and improving the general infrastructure. Some of the uses of IoT in creating smart cities include; smart traffic systems [7], smart buildings, traffic jams [7, 8] waste management [9], smart lighting, smart parking lots and city maps. This may include various functions such as: Monitoring of available parking within the city, monitoring of vibrations and the physical condition of bridges and buildings, installation of sound monitoring devices at sensitive points in the city and monitoring of the pedestrian and vehicle level. The IoT enabled with artificial intelligence (AI) can be used to monitor, control and reduce traffic congestion in smart cities [6]. In addition, the IoT enables the installation of adaptive intelligent and weather-dependent street lighting and the detection of debris and garbage cans by monitoring waste collection plans. Intelligent Highways can provide alerts and critical information such as: traffic jams.

Applying the IoT to make smart cities a reality would require with RFID and sensors. Some of the applications already developed in this area are the aware home and Smart Santander functionalities. In the United States, some major cities like Boston, have plans to implement the Internet of Things in most of their systems, connected to the Internet. These applications will offer important advances in terms of saving money and energy.

#### B. Medical care

Most health systems in many countries are inefficient, slow, and inevitably prone to errors. This can be easily changed as the healthcare industry relies on numerous activities and devices that can be automated and expanded through technology. Additional technology that can facilitate multiple operations, such as sharing reports with multiple people and locations, keeping records and dispensing medicines, would go a long way towards transforming the health sector in [10]. Many of the benefits that IoT applications offer in healthcare can best be classified as patient, staff, and object tracking, person identification and automatic data and sensor collection. Hospital workflow can be greatly improved once the flow of patients is tracked. In addition,

authentication and identification reduce incidents that can be harmful to patients, maintain maintenance records and less mismatched baby incidents. In addition, automatic data capture and transfer is critically important in process automation, shortening forms processing timelines, automated process review and medical inventory management. Sensor devices enable patient-centric functions, especially when diagnosing diseases and providing real-time information on the health indicators of patients [6]. Application domains in this sector; be able to monitor patient compliance with a prescription, telemedicine solutions and patient wellness alerts. The sensors can be used for outpatients and inpatients, dental Bluetooth devices and toothbrushes, which can provide post-use information and monitor the patient. Other elements of the IoT in this function are: RFID, Bluetooth and WiFi among others. These will greatly improve the techniques for measuring and monitoring critical functions such as blood pressure, temperature, heart rate, blood sugar, cholesterol levels, and many others.

#### C. Smart agriculture and water management

The IoT has the ability to empower and improve the agricultural sector by studying soil moisture and, in the case of vineyards, monitoring the diameter of the trunk . IoT would make it possible to control and preserve the amount of vitamins in agricultural products and regulate the microclimate conditions to make the most of the production of fruits and vegetables and their quality. In addition, studying weather conditions allows forecasting information on ice, drought, changes in wind, rain or snow, controlling temperature and humidity to prevent fungi, and other microbial contaminants. When it comes to livestock, the IoT can help identify animals that graze in open spaces, detect harmful gases from animal excrement on farms and monitor growth conditions in offspring to improve health and chances of survival, etc. Furthermore, the application of IoT in agriculture can avoid a great deal of waste and spoilage through proper monitoring techniques and management of the entire agricultural area. It also results in better power and control of the water. In water management, the role of the IoT includes studying the suitability of water in the seas and rivers for both drinking and agriculture, detecting pressure fluctuations in pipes and the presence of liquids outside the tanks to monitor variations of water in dams, rivers and reservoirs. These IoT applications use wireless sensor networks. Examples of existing IoT applications in this area are: SiSviA, GBROOS and SEMAT.

## D. Retail and logistics

Implementing IoT in the supply chain or retail management has many advantages. Some include; Compliance with storage conditions throughout the supply chain, product monitoring to allow traceability, payment processing according to location or period of activity in public transport, amusement parks, gyms and others. In stores, IoT can be applied to various applications, such as in-store guidance based on a pre-selection list, fast checkout processes such as automatic check-out using biometrics, detection of potential allergen products and the control of product rotation in shelves and warehouses to automate replenishment procedures [12]. Some of the most widely used IoT elements in this environment include; wireless sensor networks and radio frequency identification. The merchant currently uses SAP (products and system applications) while in logistics numerous examples include quality shipping conditions, item location, detection of warehouse incompatibility problems, fleet tracking, among others. In the industrial domain, IoT helps detect gas concentrations and leaks within and around industry, and tracks toxic gases and oxygen levels within the boundaries of chemical plants to ensure the safety of goods and workers and oil observation -, gas and water levels in tanks and storage tanks. The use of IoT also helps with maintenance and repair, as systems can be configured to predict device failures while automatically scheduling regular maintenance services before devices fail. This can be achieved by installing sensors in devices or machines to monitor their functionality and sending reports occasionally.

#### E. Smart Living

In this domain, IoT can be applied in remote control devices whereby one can remotely switch appliances on and off hence preventing accidents as well as saving energy [1, 3]. Other smart home appliances include refrigerators fitted with LCD (Liquid Crystal Display) screens, enabling one to know what is available inside, what has over stayed and is almost expiring as well as what needs to be restocked. This information can also be linked to a smart phone application enabling one to access it when outside the house and therefore buy what is needed. Furthermore, washing machines can allow one to remotely monitor laundry. In addition, a wide range of kitchen devices can be interfaced through a smart phone, hence making it possible to adjust temperature, like in the case of an oven. Some ovens which have a self-cleaning feature can be easily monitored as well. In terms

of safety in the home, IoT can be applied through alarm systems and cameras can be installed to monitor and detect window or door openings hence preventing intruders [3].

#### F. Intelligent Environment

The environment plays a vital role in all aspects of life, from people to animals, birds and even plants, all are affected by an unhealthy environment in one way or another. There have been numerous efforts to create a healthy environment in terms of eliminating pollution and reducing waste of resources, but the existence of industries, as well as the transport of waste together with reckless and harmful human actions are elements which constantly damage the environment. Consequently, the environment requires intelligent and innovative ways to assist in the monitoring and management of waste, providing a significant amount of data that forces governments to implement systems that will protect the environment. The integration of smart environmental strategies with IoT technology should be created for the detection, monitoring and evaluation of objects in the environment that offer potential benefits for achieving sustainable living and a green world. IoT technology allows you to observe and manage air quality by collecting data from remote sensors in cities and by providing 24/7 geographic coverage to get better ways to manage traffic jams in major cities. Furthermore, IoT technology can be applied to measure levels of pollution in water and consequently illuminate decisions on water use. In waste management, which consists of different types of waste, such as chemicals and pollutants that are harmful to the environment and to people, animals and even plants, IoT can also be applied. This can be achieved with environmental protection by controlling industrial pollution through instantaneous monitoring and management systems combined with supervision and decision networks. This serves to reduce waste [13]. In weather forecasting, the IoT can be used to offer significant accuracy and high resolution to monitor time by exchanging information and exchanging data. Through IoT technology, weather systems can collect information such as atmospheric pressure, humidity, temperature, light, motion and other, information from moving vehicles, and transmit information wirelessly to weather stations. The information is obtained by installing sensors in vehicles and even buildings, after which it is stored and analyzed to aid in weather forecasts. Radiation is also a threat to the environment, human and animal health, as well as agricultural productivity. IoT sensor networks can monitor radiation

through constant monitoring of its levels, particularly around nuclear power plants to detect leaks and diffuse deterrence

#### III. Research Challenges

For all of the potential IoT applications mentioned above, there must be adequate feasibility across the various domains to determine the success of some applications and their functionality. As with any other form of technology or innovation, the IoT has its challenges and implications that must be resolved in order for to be mass adoption. Although current IoT technologies have improved a lot in recent years, there are still numerous problems that require attention, thus paving the way for new dimensions of research. Since the concept of IoT arises from heterogeneous technologies, used in Al Capturing, collecting, trading, processing, deriving, transmitting, reporting, managing and storing data, many research challenges inevitably arise. These research challenges, which require attention, consequently span different research areas [1].

Α. Privacy and Security Owing to the fact that IoT has become a vital element as regards the future of the internet with its increased usage, it necessitates a need to adequately address security and trust functions. Researchers are aware of the weaknesses which presently exist in many IoT devices. Furthermore, the foundation of IoT is laid on the existing wireless sensor networks (WSN), IoT thus architecturally inherits the same privacy and security issues WSN possesses [3, 15]. Various attacks and weaknesses on IoT systems prove that there is indeed a need for wide ranging security designs which will protect data and systems from end to end. Many attacks generally exploit weaknesses in specific devices thereby gaining access into their systems and consequently making secure devices vulnerable [16, 17]. This security gap further motivates comprehensive security solutions that consist of research that is efficient in applied cryptography for data and system security, non cryptographic security techniques as well as frameworks that assist developers to come up with safe systems on devices that are heterogeneous. There is a need for more research to be conducted on cryptographic security services that have the capability to operate on resource constrained IoT devices. This would enable different skilled users to securely use and deploy IoT systems regardless of the inadequate user interfaces that are available with almost all IoT devices. In addition to the protection and security aspects of the IoT, additional areas like confidentiality in communication, trustworthiness, and authenticity of communication parties, and message integrity, and supplementary safety requirements should also be incorporated. These may include features like being able to prevent communication of various parties. As an example, in business transactions, smart objects must be prevented from facilitating competitors' access to confidential information in the devices and thus using this information maliciously.

- Β. Data processing, analysis and management The data processing, analysis and management procedure is a huge challenge due to the heterogeneity of the IoT and the large volume of data collected, especially in times of big data [18]. Currently, most systems use centralized systems to download data and perform computationally intensive tasks on an international cloud platform. However, there is a constant concern that traditional cloud architectures are ineffective, transfer the huge amounts of data generated and consumed by IoT-enabled devices, and that can continue to support the associated computing load and meet it at the same time constraints [19]. Therefore, most systems rely on current solutions such as Mobile Cloud Computing and Fog Computing, both based on Edge processing, to alleviate this IoT challenge. Because these information-centric systems help in retrieving content and accessing services efficiently, they appear to be of great value not only for accessing but also for transferring and managing and transferring the content generated. However, this solution presents several challenges, such as: how to competently expand the ICN paradigm beyond the edge of the fixed network, how to include mobile and static IoT devices like and how to divide the functionality of the ICN into devices with limited resources [19]. Data analysis and its context not only play a crucial role in the success of IoT, it also poses great challenges. Once collected, the data must be used intelligently to achieve intelligent IoT functions. Consequently, the development of machine learning methods and artificial intelligence algorithms resulting from neural work, genetic algorithms, evolutionary algorithms and many other artificial intelligence systems is essential to achieve automated decision making.
- C. Monitoring and Sensing: While technologies related to monitoring and sensing have made

enormous progress, they are constantly evolving with a particular focus on energy efficiency and the appearance of form. Sensors and tags would normally have to be constantly active to obtain instant data, this aspect makes it essential for energy efficiency, especially in extending the useful life of the . At the same time, new advances in nanotechnology / biotechnology and in miniaturization of the have allowed the development of nano-scale sensors and actuators.

- D. Communication protocols M2M (Machine-to-Machine): While there are already IoToriented communication protocols such as Restricted Application Protocol (CoAP) and Message Queue Telemetry Transport (MQTT), there is still no standard for an open IoT. Although all objects require connectivity, it is not necessary for every object to be Internet compatible, as they only need to have some capacity to put their data on a particular gateway. Additionally, there are many options in terms of suitable wireless technologies such as LoRa, IEEE 802.15. and Bluetooth, although it is unclear whether these available wireless technologies have the ability to continue to cover the broad range of IoT connectivity in the future communication protocols for devices are the driving force in updating IoT applications and constitute the framework of data flow between sensors and physical objects or the outside world. Although different MAC protocols have been designed for various domains with frequency division multiple access, time division multiple access, and carrier detection multiple access (FDMA, TDMA and CSMA) for low efficiency of free traffic collisions, more circuits at nodes are needed respectively. The main objectives of transport layer include ensuring end-to-end reliability as well as performing end-to-end congestion control. In this regard, most protocols are unable to cooperate adequately from one end to the other reliability [20].
- E. Blockchain of Things (BCoT): Merger of Blockchain and Internet of Things Similar to IoT, blockchain technologies have also gained enormous popularity since their introduction in 2018. Blockchain has been implemented for the first time and used as the technology behind the Bitcoin cryptocurrency, it is now used in multi-faceted non-monetary applications [21]. Miraz argues that both IoT and Blockchain can reinforce each other, by removing their respective inherent architectural limitations [22]. The technology behind loT is WSN. Therefore, similar to WSN, IoT also suffers from security and privacy concerns. Rather, the top reasons for the trend of blockchain implementation in non-

monetary applications are due to its built-in security, immutability, trust and transparency. These attributes are driven by the blockchain consensus approach and the use of Distributed Ledger Technologies (DLT) which require a large dependency on participating nodes. Therefore, the merger of these two Blockchain and Internet of Things (IoT) technologies conceives a new notion, namely the Blockchain of Things (BCoT) in which blockchain strengthens the IoT by providing additional layers of security while the IoT "things" can serve as participating nodes for blockchain ecosystems [22]. Thus, blockchain-enabled IoT ecosystems will provide better overall security [23] and benefit each other.

F. Interoperability : Traditionally as regards the internet, interoperability has always been and continues to be a basic fundamental value because the initial prerequisite in Internet connectivity necessitates that "connected" systems have the ability to "speak a similar language" in terms of encodings and protocols. Currently, various industries use a variety of standards in supporting their applications. Due to the large quantities and types of data, as well as heterogeneous devices, using standard interfaces in such diverse entities is very important and even more significant for applications which support cross organizational, in addition to a wide range of system limitations. Therefore, the IoT systems are meant towards being designed to handle even higher degrees of interoperability [2].

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