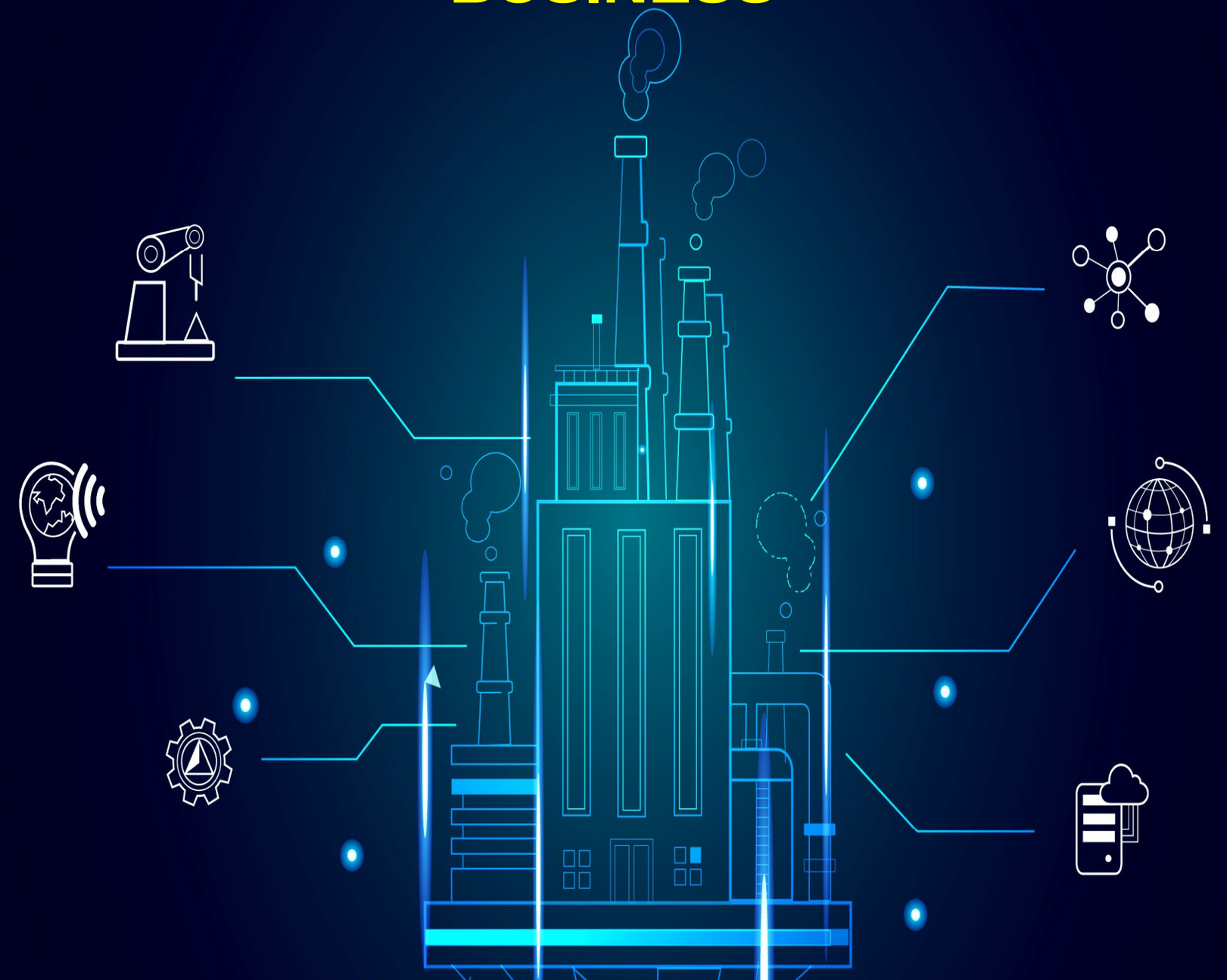
DIGITALISATION & INNOVATIONS IN BUSINESS



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Digitalisation & Innovations in Business

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Preface

" The ongoing technological transformation has the potential to boost more inclusive and sustainable growth by spurring innovation, generating efficiencies, and improving services."

Increased digitalization has influenced various business activities including companies' business models by enabling various new forms of cooperation between companies and leading to new product and service offerings as well as new forms of company relationships with customers and employees. At the same time, innovation has put pressure on companies to reflect on their current strategy and explore new business opportunities systematically and at early stages. While research on digitalization in the context of BMs is now gaining increased attention.

Developments in digital technology offer new opportunities to design new products and services. However, creating such digitalized products and services often creates new problems and challenges to firms that are trying to innovate. In this essay, we analyze the impact of digitalization of products and services on innovations.

Industries are entering the fourth industrial revolution (Industry 4.0) through capitalizing digitalization, which is revolutionizing the way business is conducted in industrial value chains. We are witnessing a new age, where industry is becoming increasingly 'smart' with the use of Internet of Things (IoT) technologies, intensive data exchange and predictive analytics. The benefits are many: automation and optimization of processes can improve productivity and profitability by saving costs, speeding up production, and significantly reducing errors. Most industry experts view this transformation through a positive lens and Industry 4.0 is expected to increase efficiency by 15–20% and account for more than 20% of the revenue generation over the next five years. These numbers show that the use of digital technologies represents a significant potential for business model innovation in a business-to-business (B2B) setting, while providing new revenue and value-producing opportunities. Those companies that are able to capitalize on digitalization potential driven by big data and analytics will outperform their peers in revenue growth and operating efficiency.

This Edited book comprises of thirty chapters. The first few chapters focus on various ways through which innovation and digitalization can be offer new opportunities to design new products and services. The next few chapters talks about the role of ICT, AI, Big Data, Block Chain. The last few chapters highlights the impact of digitalization and innovation in business and economic growth.

We hope that this book will be prove to be helpful to students, research scholars, academicians and business executives in having a better understanding of the concept of innovation and digitalisation in business industry.

Editor

Acknowledgement

I am really feeling very honoured and privileged to have had this Opportunity to bring out an Edited book on a new topic very useful for industries and economy. At the onset I would like to express my heartfelt Gratitude to the Almighty for always showering his blessing on us.

This Edited Book would not have been possible without the contribution of the learned authors who have put life to this book through their valuable research work. I am indebted to each one of them for their contribution.

I am thankful to my parents Mr. Krishna Dev Prasad & Mrs. Vimla Devi for making me what I am today. The upbringing they gave has helped me to become a confident and a capable individual. No words can do justice to the feeling of gratitude that I have towards them.

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Digitalization and Innovations in Health Care

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Abstract
The process of digitalization and innovation greatly affects people's healthcare services. The digitalization process has strengthened health services at all levels, such as locally, regionally and globally. Based on the overall findings of this study, the technological innovation and digitalization process of global health care services has been broadly divided into three categories: (i) eHealth and health care process, (ii) artificial intelligence and blockchain, and (iii) mHealth. eHealth principally encompasses the health issue with the application of information and communication technology (ICT), while artificial intelligence redefines health care, integrating the intelligence of people and machines. mHealth is now a buzzword as it comprises the use of a mobile phone to reduce distance, service cost, time and instant services. Anyone can get health tips or queries anytime through mobile phone health services. Updated services of digitalization include the use of the smart pill to look for problems inside the body, 3-D printing to print custom organs for transplant and the use of robots for surgery. Although health care in Bangladesh has always been characterized by poor infrastructural conditions with a large population of the country, the government and NGOs are currently utilizing different digital applications, such as mHealth and electronic services to improve the situation. Technological innovation in health care guarantees better treatment delivery, higher quality, and easier for patients to choose protective care and options. However, the likelihood of complications, misuse of patient records and the loss of body cells are usually targeted at the age of digitization. The most obvious, expected changes would be closer to the care home and citizens having more responsibility for managing their health and well-being.

Keywords: Digitalization, health care, technology, eHealth, mHealth

Introduction

"Technology is not to be feared; it is only to be understood" (Rodríguez, 2019). Digitalization in health care is identified as a process of adaptive change. The term digitalization means the process of digitizing society. Digitizing is seen as the process of making the analog information and data into a digital format using bits bytes and turn into digital. Digitalization is the use of technology in the production of service. It is a cultural process of changing the way of doing a thing. The digitalization process has made health care services easier and cheaper that reduces human effort and saves time. Digitalization in health care includes using a computer to keep electronic health records, remote sensing, diagnosis, shared decision making, etc. The process of digitalization has opened a new era of achievement in the health care system (EXPH, 2019).

In addition, innovation along with digitalization made the health care process easier. Merriam-Webster (n.d.) defined that innovation is the combination of a new idea, device, or method and the act or process of introducing them. Innovation incorporates the way of solving problems with more operative and convenient ways (Kimble and Massoud, 2017). Innovation can be observed in the extent to which new diagnostic tools and an upgraded way of health care systems are adopted. The degree and way, for instance, new surgical procedures, diagnostic tools, and forms of health care organizations are adopted (Lambooij et al., 2010). The acceptance of innovation determines its diffusion. The health care system has been much convenient with the application of new innovations. Thus, the process of digitalization and innovation are associated with each other and these processes made the health care system modernized.

The use of the internet and technology has opened a new era in public health service. The innovations and the advancement of that innovations affect the process of medication vastly. The objective of any social innovation is to confront the problems regarding human development by bringing the system-level change (Kimble and Massoud, 2017). eHealth can make it possible to take the service of professional doctors without going to hospitals, to take suggestions if an emergency. Health professionals can enrich their medical knowledge by learning through online, diseases can be tracked easily that facilitate public health. eHealth strengthens the health services locally, regionally and globally. mHealth is the health services based on mobile communication. mHealth made it possible to engage the most individuals engaged in health care services and spreading these. mHealth digitalized public health information and contribute to collect data on diseases. Research and the diagnosis of diseases are possible now by mHealth that deals with big data. The mobile phone is the most available thing that is in everyone's hands. Several health-related apps and the spread of health data on social media contribute to mHealth that eventually facilitates eHealth services (World Health Organization, 2015).

It is, therefore, essential to understanding how different types of digitalization and innovative processes are linked to the health care system. It is described the various types of digitalization and innovation processes in health care worldwide, followed by the latest innovations and digital themes used in health care. Furthermore, a section on health care digitalization in Bangladesh has been included to get an idea of regional and/or local health care systems in a developing country, along with the strengths and limitations of the digitalization process. Finally, the conclusion summarizes the digitalization and innovations in the health care process and presents directions for future digitalization.

Types of digitalization and innovations in health care

Now it is outlined below three major types and subtypes of technological innovations and digitalization in health care services around the world.

eHealth and health care process

eHealth

The society is based on communication and technology. The technological innovation has added a small ‘e’ in front of almost all social activities that focus on the universal root that is ‘*connectivity*'. e-health is the example of the connectivity. Linking everything with everything make society open by creating flexible networks (Belliger and Krieger, 2018).

eHealth encompasses the health issue with technology. The application of computers, internets, mobile phones, mobile applications to enhance health care service can be referred to as eHealth (Hoque et al., 2014). The World Health Organization (2003) defines e-Health as being the leveraging of ICT to connect providers and patients and governments; to educate and inform health care professionals, managers, and consumers; to stimulate innovation in care delivery and health system management; and, to improve our health care system. E-Health covers a wide range of medical applications such as citizen health information, management systems, health-care services provision, etc. But eHealth can be differentiated from traditional health in the degree of using the internet facilities (Hoque et al., 2014). E-mental health is more about making cultural change by enabling the patients to practice their choice and control than about technology (Hollis et al., 2018).

Networking the root of eHealth

Networking is the basis of the development of human evolution and this connectivity is enhanced now by information and communication technology. The technological innovation made many to many communications possible. Digital information technology has reduced the spatial limitations and availed access to everywhere by everyone. Networks make new ways of practicing professional expertise and research. The connections the root that results in improved communication among everyone irrespective of class, caste, gender and space (Belliger and Krieger, 2018).

Telehealth/ Telemedicine

Telemedicine refers to the consultation of medical professionals from a distant place. People living in rural areas and distant from the hospitals can avail the health care services at reduced costs. Telemedicine is a two-way communication that bridges between the patient and doctors. It encompasses a variety of applications through the internet, wireless tools and mobile phones that trigger health care by telecommunication technology (Prodhan et al., 2016). Telehealth services aim at ensuring remote consultation that provides emergency responses in a short time through telecommunication facilities. When health-related services and information are delivered by using technology it can be called telehealth service. The services can be simple as doctors' direct appointment or complex as to conduct a critical surgery by robotics. (Khatun and Sima, 2015).

Video conferencing

Video conferencing helps to observe the health condition of the patient, monitoring the situation and to provide emergency treatment and consultation when necessary. It also helps to observe from remote area and treatment that saves time, effort and sometimes provide the lifesaving assessment. Virtual office visits and the improved health service to rural areas can fulfill the need of efficient medical personnel (Vidyo, 2012).

Internet health service

A system of interconnected computer-network is the internet where a big number of devices can work together. When the health services are conducted through the internet service it is much more affordable and precise. It focuses on improved health research and the sharing of the lessons. Access to health services became much easier by internet health services (Khatun and Sima, 2015).

Computer health service

The health services when conducted by using a computer then it can be called computer health services. At present, the hospital activities and diagnosis solely depend on the computer facilities as a computer can work with big data. The computer health service focus on routine reporting, online reference data, advanced diagnostic tools, medical research, hospital management and efficiency of treatment (Khatun and Sima, 2015).

Internet of Medical Things (IoMT)

Internet of things (IoT) is the combination of many technology and Internet of Medical Thing (IoMT) is a combination of technology to support the health care industry. It encompasses the medical procedures for the right customers. IoMT has segmented the application into four for the anytime anywhere approach of health care targeting the medical practitioners and allowing them for the proactive approach of better patient outcomes (Das et al., 2020). The four segmentations of application are presented below.

(a) On-Body (aka Wearables): Medical grade wearable implants are now available in the market that can communicate parameters and used by the patients. Even consumer-grade producers of wearables are initiating medical-grade features for their products. The most recent example being Apple Series 4 Watch for ECG monitoring that secured US Food & Drug Administration approval (Das et al., 2020).

(b) In-Home (extending to Smart Homes): The patients staying at home can be connected to diagnostic medical services under telehealth. For example, Tyto Care is an at-home physical examination device for ears, throat, heart, lungs, abdomen, skin, heart rate and temperature. These devices can provide better monitoring and health service by connecting with smart ho, e systems (Das et al., 2020).

(c)In-Hospital (extending to Smart Hospitals): Hospitals are arranged with RFID, beacon or indoor GPS technologies throughout the premises and smart hospital rooms that allow patients to communicate with care teams effectively (Das et al., 2020).

(d) In-Community (extending to Smart Cities): Technology can collect health data even outside of home and hospitals. Smart cars can track passengers' physical condition and drones are managed for emergency services. The MIT Underworlds Project discovers sewers to track the spread of diseases by

using sensors, but smart city projects are probably not geared for health care at the moment, we envision these to become a reality in the 10-20-year timeframe (Das et al., 2020).

Artificial Intelligence and blockchain

Artificial Intelligence (AI)

Artificial Intelligence incorporates man and machine intelligence together to redefine health care. AI has three forms, and these are presented below.

(a) Medical Imaging: There are several advanced applications of ai including detecting a tumor in a CT scan and now it even has several other applications in the medical imaging workflow for AI. From the ordering of imaging to the interpreting and reporting can be done by AI in different formats (Das et al., 2020).

(b) Patient-Facing Apps and Devices: Patients can face medical devices and mHealth apps help to draw patient intensive monitoring equipped with AI. Patient engagement is another important area of using AI applications. Patients can be automatically identified who need screening and follow up support (Das et al., 2020).

(c)Blockchain – The new trust code for digital health workflows

Blockchain is the increasing list of records and the blockchain technology encompasses the distributed ledger technology that allows storing data globally on thousands of servers. Despite the enormous potential of blockchain in disrupting health care digital workflows, it may not be the panacea for all health care industry challenges. Blockchain technology work by arranging health data and increase interoperability. Blockchain can solve fraud and wastage. An estimated $455 billion is lost every due to fraud, waste, and abuse (Till et al., 2017). Personalized health data lead to health research perfection that eventually results in a precision of medicine.

mHealth

mHealth refers to mobile health. When people can avail health services by calling mobile numbers or SMS without going to hospitals is called mobile health. It helps to reduce the cost of transportation and provide instant service with efficiency. Anyone can avail health-related tips or queries any time by mobile phone health services. In cases of emergency and the inability to go to hospitals can be reduced by mobile health services (Khatun and Sima, 2015). It is the advanced use of mobile technology to support health service. mHealth now encompasses the call Centre service and emergency number services accelerate the service. Several wellbeing apps, remote sensing, wearable devices, lifestyle information has changed the medication process (World Health Organization, 2015). In built sensors of the smartphone can collect data such as blood pressure, pulse Electrocardiogram (ECG), Electroencephalogram (EEG), etc. (Nanhore and Bartere, 2013). The mobile phone incorporates many wireless communication techniques such as GSM, Wi-Fi, Bluetooth, etc. These techniques help to integrate the mobile phone to health care services. mHealth applications are conducted by online stores such as App Store, Google Play, Ovi Store and others that increase the availability of mobile health care solutions (Nanhore and Bartere, 2013). The mHealth incorporates the following four types of the censor to investigate biological functions.

(a) Biosensor and smartphone sensor: The biosensor refers to the self-control analytical device in which a biologically active material gets into contact with the transduction element to detect the chemical species in any type of sample.

(b) Microphone Sensor: Microphone in the mobile phone is used to measure the patient's situation. Patients with Myotonia have slow relaxation of muscles that need to be sensor from time to time. The automated voice responds to classified symptoms such as muscle stiffness, weakness, pain, and tiredness.

(c) Camera Sensor: The camera of a mobile phone in some cases can provide patient images and videos for remote doctor consultation. The use of the camera is mostly seen in teledermatology where the skin image of a patient is important for the doctors.

(d) Accelerator Sensor and geolocation facilities: A person's physical activity level can be assessed by the accelerator sensor that eventually can save one from many chronic diseases. Many steps performed by a person is measured by accelerator (Nanhore and Bartere 2013).

mHealth apps

There are many mobile apps targeting mental health and wellbeing. Some of the applications are aimed at health care professionals but the majority are targeted at the general public. Some examples of apps that have been developed for mental health include CLIN Touch (www.clintouch.com), My Journey (www.sabp.nhs.uk/eiip/app), Buddy App (www.buddyapp.co.uk) and Well Happy (apps.nhs.uk/app/wellhappy/). Usually, these apps use symptom tracker appointment and medication reminders and motivational prompts. The task of building an evidence base and framework for evaluating the rapidly increasing number of m-health apps and other digital products is being led by NIHR MindTech Health care Technology Co-operative and should be a priority area for NHS applied health research (Hollis et al., 2018).

The main reason for using mobile phones in health care services is to improve the quality and availability of health care services. Most of the people in the world already have a mobile phone. It is much convenient for anyone to access health services through the mobile phone. Smartphones with sensors attached to them have made life easier with low cost. In-built mobile phone sensors improved people by curtaining their time to find things, improve health conditions, and even more serious applications are emerging that are live saving (Nanhore and Bartere, 2013).

Innovations and digital themes

Latest innovations

Smart pill

Swallowing a smart pill that will look out for problems in your intestines is the latest innovation of modern health care technology. If there is any problem found, the pill can release the appropriate medicines to respond to the condition. These smart pills do better than regular pills, which deliver a small portion of their medicine to where it is required (Harkness, 2019).

3-D printing

As the cost of 3-D printing is cheaper now it has become a more feasible tool for health care. It has been now possible to print custom organs for transplant, in a process called 3-D bioprinting. 3-D bioprinting has been used to create a skin for burn victims and portions of muscle to patch a faulty heart. Another thrilling application of 3-D printing is around the world is the ability to create customizable prosthetic limbs (Harkness, 2019).

Robotic surgery

The first completely robotic surgery and anesthesia were completed in 2008 by the da Vinci surgical robot and since then the industry has taken. Robotic surgery can be precise and sometimes better than humans. Now one in four U.S. hospitals have at least one da Vinci robot, which requires a surgeon to operate. There are also newer systems that can perform surgery all on their own, once (Harkness, 2019).

Digital themes used in health care

The digital transformation of the health care system outlined by the World Economic Forum (2016) comprises the following digital themes:

(a) Smart care: This is the first theme that focuses on patients' health and curtails the cost using medical printing, precise medicine and robotics.

(b) Care anywhere: Care anywhere that made the health care services to avail from anywhere by connected home and virtual care, access from anywhere and remote consultation.

(c) Empowered care: It is the third one through which the patient himself can take part in his health care by providing living services.

(d) Intelligent health enterprises: It informs how to collect big data that reduces effort enabling health care and maximize efficiency and enable real-time monitoring.

Digitalization of health care in Bangladesh

This section of Bangladesh is included to present regional or local information on the digitalization of health care. The health care sector of a country is an important determinant of the development of the country. It represents the quality of life there. Health care in Bangladesh is a sector that has always been characterized by poor infrastructural conditions with the nation's robust population (Huq, 2018). Several signs of progress have been brought out in the digital health care system in Bangladesh. There is always a constitutional obligation to assure health care services by The Government of Bangladesh (GoB). Section 15(A) of the Bangladesh Constitution is about the assurance of medical facilities irrespective of stratification. The Health care system is maintained by The Ministry of Health and Family Welfare (MoHFW) and The National Health Policy of 2011 (NHP-2011) works for ensuring basic health care for the citizens (Khatun and Sima, 2015).

Telehealth services in Bangladesh

In Bangladesh, the first telemedicine link was established by Swinfen Chairatable in 1999. Telemedicine consultation aims to reduce the costs and decrease transportation issues and the time, Quality of medical care in rural areas can be improved by using telemedicine in the delivery of specialized medical care for the patients. Tele-consultant can affect diagnosis and treatment in telemedicine (Prodhan et al., 2016).

DGHS e-service

Remarkable progress has been made in public health by improving immunization coverage and reducing communicable diseases.

1. through the Health, population, and nutrition sector program (HPNSP) 2017–2022;
2. to improve equity, quality, and efficiency, to move towards universal health coverage and achieve Sustainable Development Goal (SDG);
3. The HPNSP, in turn, is guided by Bangladesh’s overarching Vision 2021, which aims to transform the country from a lower-middle-income economy to having crossed the threshold and become a middle-income nation by 2021;
4. A key strategy and policy focus of Vision 2021 is exploiting ICT to the full to help steer the country’s development.

As a result of this strong political and policy focus, significant work has been done to introduce digital solutions to challenges facing the health sector. This has been led by the Management Information System unit in the Directorate General of Health Services (MIS-DGHS), which is the digital health hub of the Government of Bangladesh. MIS-DGHS has fostered a supportive environment for digital innovation, and progress has been rapid. This perspective paper briefly summarizes progress to date (Khan et al., 2019).

Tonic by Telenor/Grameenphone

Digital health is a combination of digital and genomic revolutions along with health, health care, living, and society. Digital health tools change how people interact with their health care teams and contribute to improved care for themselves and their loved ones. Telenor is Norway's largest telecommunications company and one of the fastest-growing providers of mobile communications services worldwide. Telenor is also the largest provider of TV services in the Nordic region. Telenor has mobile operations in some of the world's fastest-growing markets. Its home market, Norway, is one of the most advanced in the world today (Morrison, 2015).

SHR project

MIS-DGHS is working on an ambitious shared health record (SHR) project, intending to create a national electronic archive of citizens' lifetime electronic health records that can be accessed during any patient encounter anywhere in the country. Patients will not need to carry a personal health file,

and doctors and health facilities will be able to retrieve and update an individual's medical record on demand. Open MRS is a software platform and reference application that enables the design of a customized medical records system. The Bangladeshi version, known as OpenMRS+, is a composite of modules from OpenMRS, Odoo (previously OpenERP, a business applications suite), OpenELIS (a software and business-process framework for public health laboratories) and dcm4chee (an application for the management and archiving of clinical images). OpenMRS+ is integrated into the SHR system so that they can work interactively through the health information exchange in transporting patients' electronic files to a central repository where up-to-date versions are stored and to the health facilities or providers that require them (Khan et. al., 2019).

The BRAC Manoshi project

The BRAC Manoshi project empowers community health workers with simple mobile phones for gathering patient information in real-time and prioritizing treatments (e.g. for high-risk pregnancies), as well as for early intervention and emergency treatment for complications in delivery through remote consultation from stationed doctors (Center for Health Market Innovations, 2012)

Union health care system in Bangladesh

The Upazilla system has given a better result to extend the union health care system in the rural areas through Union stations. Internets, mobile phones, and media as a whole play a vital role to upgrade the health care of the poor people of villages. A few days back, the Prime Minister of the country has inaugurated the union health care centers through a voice call. The call has reached a big part of the villagers through the union centers also (South Asia Subregional Economic Cooperation, 2014).

e-Toolkit and e-Learning

The eToolkit and eLearning courses are being applied as an eHealth pilot project through 300 notebook computers and up to 300 existing facility and information center-based computers in two of the lowest-performing districts in Bangladesh, Sylhet, and Chittagong. These digital resources can support field-level health care and improve their client interactions. The Community Health Workers (CHWs) often have too many job aids to carry, lack basic Behavior Change Communication (BCC) health tools and training and are given material with conflicting messages that may not be the best practices (South Asia Subregional Economic Cooperation, 2014).

Participation of rural community to the health care system

The participation status of the people is very low in a number of the health characteristics, viz., facing a physical problem, proper sanitation guidelines, frequency of doctors' visits, and distance to the hospital. The respondents that had good health and live nearby hospital can take treatment from the hospital. The age of respondents, types of diseases, types of the family, present occupation status, residence status whether near to the hospital, whether ensured of safe drinking water, physical obstruction status, proper sanitation status, administrative factors, bureaucratic norms, and motivational therapy are also important determinants for the people's participation in the rural health complex (South Asia Subregional Economic Cooperation, 2014).

Advantages and disadvantages of digitalization and innovations in health care

The use of technology to ensure better health outcomes is a great innovation. The Technological innovation in health care helps to provide better treatment towards patients, assure the higher quality and safer care, easier to choose alternatives effective as well as an equitable health system, remote health service by monitoring, health research, appointment scheduling, developing diagnostic tools and better hospital management are possible by the use of Technology in the health care system (Khatun and Sima, 2015).

Moreover, eHealth and mHealth are collectively called connected health that describes the provision of health service by electronic media, use of a computer, use of the internet, use of the mobile phone for remote sensing. These provide emergency service and people can avail of medical services in a short time with no difficulty. Electronic health records, sensor technology, video conferencing, online therapy, wearable body sensors, big data analytics and the use of various mobile applications made the opportunity to access health service for patients and medical personnel (Hollis et al., 2018). Primary

care can also be improved through electronic health records and telehealth by using digital technology (Gagon et al., 2019). Moreover, the medical professional can have access to their patient's data at any time by a simple click. The mobile phone has jumped technology much by providing availability with a number of facilities.

However, digital health care has some limitations. Complicated and complex health information cause concerns for patients. Sometimes clinician's reports elevate patient provider's relationship concerns. Hackers can approach and access the patient's records. It needs to be upgraded regularly and it is difficult without stable internet. Digital health records are expensive, complex and composite processes. The lasers can damage the cells of the body.

Conclusion

In short, eHealth and health care systems, artificial intelligence and blockchain, and eHealth are identified as the main types of digitalization and innovation processes in health care worldwide. The government, NGOs, and telecommunication companies are working together to digitize the health system of Bangladesh. The true digital health care industry can revolutionize diagnosis and treatment by focusing on prevention and management. With the broad role and seamless combination of digital applications and connected devices, the health care industry can be transformed from a responsive system to one that is actively patient-centered, and data-driven. The most obvious, expected changes would be closer to the care home and citizens having more responsibility for managing their health and well-being. With the significant impact of digitalization in health care, the health care industry can bring about radical changes in productivity (World Economic Forum, 2016). The future of the digitalization of health will be greatly expanded with apps and connected devices that can help patients have a better experience and transform themselves in the health care industry.

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Digitalisation and Government of India Initiatives

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ABSTRACT
The Indian government successfully started various initiatives though, which resulted in meeting many of these challenges and in paving the way to digitization. We need to be aware of the fact that digitization in India means realizing a technological revolution in an extremely diverse country. As a consequence, there is a strong demand for consultants from all different service areas, especially from IT and Corporate Compliance. As mentioned above, the missing access to digital technology especially in rural areas along with a corresponding absence of knowledge about its use represents one of the major challenges to be mastered. The persisting lack of basic education in large portions of the Indian population cuts back on the digitization possibilities. The use of mobile phones and internet access is still weakly spread and even nonexistent in rather remote rural areas. India thus needs more attention and more investments to be dedicated to its digital infrastructure. The Indian government introduced a variety of programs to promote the digitization process. "Digital India" is determined to transfer India into a digitally competent economy. "Startup India" offers funding opportunities and incentives for start-ups. Companies that digitize their processes are granted numerous financial incentives. Some provincial governments even offer special packages for business companies. "Digital India" thus offers attractive opportunities for investors from all sectors to invest into and prosper with the booming Indian economy. This paper focuses on the importance of digitalisation to country like India with large population for all the public services to be provided on a faster way through various digitalisation schemes in front of public.

Introduction

The Indian government successfully started various initiatives though, which resulted in meeting many of these challenges and in paving the way to digitization. The biometric identification program "Aadhaar" rang the bell for India´s digital revolution. Further projects like Jan-Dhan Yojana (providing a bank account for every Indian household), PAHAL (LPG subsidies for Aadhaar Card holders) and DigiLocker (storage of personal documents on a secured government server). Under the flagship campaign "Digital India", the government continues to initiate further projects for the benefit of citizens as well as companies. The mission "Smart Cities" e.g. is supposed to change the urban landscape, to create new investment opportunities and to promote employment. Furthermore, the Indian government continues to strongly promote the transfer into a cashless economic system by pushing the establishment of digital payment transactions has been thriving dynamically since the demonetarization in 2016.

Digitalisation and its Importance

Development continues to move forward slowly but steadily, with public-private partnerships playing a major role. Progress achieved in the fields of technology, connectivity, collaboration tools as well as improvements in management practice perceptively affect every day´s life, pointing out the importance of digitization to every individual. The limited access to electricity in rural areas remains a major obstacle for the further advance of digital technology, though.

Everyone, including the social sector, took benefit of the digitization. We observed a larger growth though in fields which are directly linked to state programs. The mission "Smart Cities", e.g., will mainly contribute to the promotion of the construction and real estate industry, the infrastructure sector as well as the steel and concrete industry. „Make in India" and „Digital India" successfully

opened up new chances for the technological sector. Some market leaders started to manufacture electronic products in India. The "Skill India" initiative is supposed to promote the digital infrastructure by enabling the mass scaling of competence development, using technology as a mechanism for mass supply.

We need to be aware of the fact that digitization in India means realizing a technological revolution in an extremely diverse country. As a consequence, there is a strong demand for consultants from all different service areas, especially from IT and Corporate Compliance.

There is major potential for German and European companies to be seen in the food and agriculture industry. So far both sectors are still poorly organized and locally restricted. There are extraordinary investment opportunities lying in the automation of industrial food processing and packaging processes as well as in data supply for precision farming. With a constantly growing population and an increasing urbanization, the demand for food will increase dramatically in the near future. An increase in purchase power will lead to a growing demand for high-protein food.

Progressive IT devices and services (e.g. cloud computing, blockchain) offer further investment and collaboration opportunities, especially with regard to the rapidly growing sector of financial services.

As mentioned above, the missing access to digital technology especially in rural areas along with a corresponding absence of knowledge about its use represents one of the major challenges to be mastered. The persisting lack of basic education in large portions of the Indian population cuts back on the digitization possibilities. The use of mobile phones and internet access is still weakly spread and even nonexistent in rather remote rural areas. India thus needs more attention and more investments to be dedicated to its digital infrastructure. A further obstacle on the way to a successful digitization is the lack of training for government officials who are responsible for e-governance. We have seen e-governance projects achieve great success in some parts of India, while they completely failed in other regions. Public-private partnerships could contribute to enhancing the success rate of such projects equally generating a benefit for entrepreneurs in the long run.

For the sake of a successful digitization process, special attention has to be paid to guidelines, data protection and data security. While companies are already actively invited to invest and contribute their bit to the digitization process, there are still inflexible guidelines and tax barriers that need to be tackled previously. Currently, the dispute regarding the linking of the Aadhaar card to the bank account as well as to further payment platforms is pending in front of several courts, especially considering the right of personality and the protection of personal data. Though all in all we have seen digitization succeed in India, we have to state that the population is still only reacting hesitantly to the changes incurred. People are used to a certain handling and it takes time and assistance to help them integrate new systems into their everyday life. Government initiatives and education programs have already been installed in order to solve the problem.

Generally speaking, the Indian people exhibit a most active and interactive mentality. The rapid success of social media gives proof of this. Government officials literally contact citizens via different social network platforms and resolve emergency cases by means of #hashtag diplomacy. As a consequence, digitization enjoys a general acceptance by the population, and social network platforms are used to pass on information quickly and easily to the citizens.

The Indian government introduced a variety of programs to promote the digitization process. "Digital India" is determined to transfer India into a digitally competent economy. "Startup India" offers funding opportunities and incentives for start-ups. Companies that digitize their processes are granted numerous financial incentives. Some provincial governments even offer special packages for business companies. "Digital India" thus offers attractive opportunities for investors from all sectors to invest into and prosper with the booming Indian economy. Given the size, the dimension and the complexity of the challenges, India is moving towards its targeted objective with impressive continuity and speed. Nonetheless, there is still literally way to go taking digitization from vision to practice. India offers many opportunities for German companies to become part of the Indian success story and benefit from the progress to be made.

Government of India Initiatives

The following are the government of India initiatives in the process of digitalisation are

1. AADHAAR ENABLED PAYMENT SYSTEM (AEPS)

AEPS is a bank led model which allows online interoperable financial inclusion transaction at PoS (MicroATM) through the Business correspondent of any bank using the Aadhaar authentication. It is a payment service empowering a bank customer to use Aadhaar as his/her identity to access his/ her respective Aadhaar enabled bank account and perform basic banking transactions like balance enquiry, cash deposit, cash withdrawal, remittances through a Business Correspondent.

2. BPO SCHEME

The India BPO Promotion Scheme (IBPS) seeks to incentivize establishment of 48,300 seats in respect of BPO/ITES operations across the country. It is distributed among each State in proportion of State's population with an outlay of Rs. 493 Crore. This would help in capacity building in smaller cities in terms of infra & manpower and would become basis for next wave of IT/ITES led growth. This scheme has potential to create employment opportunities of around 1.5 lakh direct jobs considering three shift operations. It may also create good number of indirect jobs.

3. DIGIDHAN ABHIYAAN

The initiative plans to enable citizens and merchants to undertake real time digital transactions through the DIGIDHAN Bazaar.Through organising DigiDhan Mela's across the country, it aims to handhold users in downloading, installing and using various digital payment systems for carrying out digital transactions.

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5. MYGOV

MyGov platform is a unique path breaking initiative which was launched by the Hon'ble Prime Minister of India, Shri Narendra Modi. It is a unique first-of-its-kind participatory governance initiative involving the common citizen at large. The idea of MyGov brings the government closer to the common man by the use of online platform creating an interface for healthy exchange of ideas and views involving the common citizen and experts with the ultimate goal to contribute to the social and economic transformation of India.

6. NATIONAL MISSION ON EDUCATION USING ICT

The National Mission on Education through Information and Communication Technology (NMEICT) has been envisaged as a Centrally Sponsored Scheme to leverage the potential of ICT, in teaching and learning process for the benefit of all the learners in Higher Education Institutions in any time any where mode. It is a landmark initiative of the Ministry of Human Resource Development to address all the education and learning related needs of students, teachers and lifelong learners.

7. NORTH EAST BPO PROMOTION SCHEME (NEBPS)

The North East BPO Promotion Scheme (NEBPS) has been approved under Digital India Programme, to incentivize BPO/ITES Operations in North East Region (NER) for creation of employment opportunities for the youths and growth of IT-ITES Industry. The objectives of NEBPS are as under: (i) Creation of employment opportunities for the local youth in NER, by promoting the IT/ITES Industry particularly by setting up the BPO/ITES operations. (ii) Promotion of investment in IT/ITES Sector in NER in order to expand the base of IT Industry and secure balanced regional growth.

8. NREGA-SOFT

NREGA soft envisions implementing e-Governance across State, District and three tiers of Panchayati Raj Institutions. It empowers the common man using the information technology as a facilitator. NREGAsoft provides information to citizen in compliance with the right to information Act (RTI

Act). It makes available all the documents like Muster Rolls, registration application register, job card/employment register/muster roll issue register, muster roll receipt register which are hidden from public otherwise.

9. OPENFORGE

OpenForge is the Government of India's platform for open collaborative development of e-governance applications. Through this platform, the government wants to promote the use of open source software and promote sharing and reuse of e-governance related source code. OpenForge has the following objectives: -To provide a platform for maintaining code repositories and version control for government source code -To promote a culture of open collaborative application development between public agencies and private organizations, citizens and institutions -To reduce development cycles and fasten the rollout of e-governance applications in the country -To deliver e-governance services and solutions of higher quality and security through increased transparency and mass peer review -To reduce e-governance project cost and bring down total cost of ownership through a system of reuse, remixing and sharing

10. PAHAL (DBTL)

The PAHAL (DBTL) aims to reduce diversion and eliminate duplicate or bogus LPG connections. The scheme was earlier launched in 2013 and was modified in 2015. Under the PaHaL scheme, LPG cylinders are sold at market rates and entitled consumers get the subsidy directly into their bank accounts. This is done either through an Aadhaar linkage or a bank account linkage.

11. PAYGOV INDIA

A National Payment Service platform has been envisaged for a common e-Governance infrastructure that will offer end-to-end transactional experience for a citizen which includes accessing various services through internet with payment gateway interface for online payments. Ministry of Electronics and Information Technology along with NSDL Database Management Ltd (NDML) created a common infrastructure that can be used by Center/States/Departments to offer various services through their National / State portals with a facility to make online payment using net banking, credit cards and debit cards.

12. PRADHAN MANTRI GRAMIN DIGITAL SAKSHARTA ABHIYAAN (PMGDISHA)

PMGDISHA is a scheme to make six crore persons in rural areas, across States/UTs, digitally literate, reaching to around 40% of rural households by covering one member from every eligible household by 31st March, 2019. It aims to bridge the digital divide, specifically targetting the rural population including the marginalised sections of society like Scheduled Castes (SC) / Scheduled Tribes (ST), Minorities, Below Poverty Line (BPL), women and differently-abled persons and minorities.

13. PRADHAN MANTRI JAN-DHAN YOJANA (PMJDY)

PMJDY is a National Mission on Financial Inclusion encompassing an integrated approach to bring about comprehensive financial inclusion of all the households in the country. The plan envisages universal access to banking facilities at least one basic banking account in every household, financial literacy, access to credit, insurance and pension facility. The initiative envisages channeling all Government benefits (from Centre / State / Local Body) to the beneficiaries' accounts and pushing the Direct Benefits Transfer (DBT) scheme of the Union Government.

14. PRADHAN MANTRI KAUSHAL VIKAS YOJANA (PMKVY)

PMKVY is the flagship scheme of Ministry of Skill Development & Entrepreneurship (MSDE). The objective of this Skill Certification Scheme is to enable a large number of Indian youth to take up industry-relevant skill training that will help them in securing a better livelihood. Individuals with prior learning experience or skills will also be assessed and certified under Recognition of Prior Learning (RPL).

15. SMART CITIES

The Government of India launched the Smart Cities Mission in June 2015. Its objective is to promote sustainable and inclusive cities that provide core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment and application of 'Smart' Solutions.The focus is on

sustainable and inclusive development and the idea is to look at compact areas, create a replicable model which will act like a lighthouse to other aspiring cities. The Smart Cities Mission is meant to set examples that can be replicated both within and outside the Smart City, catalysing the creation of similar Smart Cities in various regions and parts of the country.

16. TARGETED PUBLIC DISTRIBUTION SYSTEM (TPDS)

The Government of India launched the Targeted Public Distribution System (TPDS) with focus on the poor. Under the TPDS, the States were required to formulate and implement foolproof arrangements for identification of the poor for delivery of foodgrains and for its distribution in a transparent and accountable manner at the FPS level. The scheme, when introduced, was intended to benefit about 6 crore poor families for whom a quantity of about 72 lakh tonnes of food grains was earmarked annually.

17. VISVESVARAYA PHD SCHEME FOR ELECTRONICS AND IT

One of the key goals of the Visvesvaraya PhD Scheme is to encourage working professionals and non-PhD faculty members to pursue PhD in the ESDM & IT/ITES sectors as part-time candidates. It is envisioned that having part-time PhD students is likely to encourage the Industry-Academia interaction, help in the alignment of the R&D efforts between them and bring value to the country.

18. ACCESSIBLE INDIA CAMPAIGN AND MOBILE APP

Sugamya Bharat Abhiyaan or Accessible India Campaign is a nation-wide flagship campaign for achieving universal accessibility that enables people with disabilities to gain access for equal opportunity, live independently and participate fully in all aspects of life in an inclusive society. The campaign targets at enhancing the accessibility of built environment, transport system and Information and communication ecosystem. The mobile application is a crowd sourcing platform to comprehensively obtain information on inaccessible places across the country. The mobile application is available on IOS, Android and Windows platform and can be downloaded from the respective App Stores.

19. AGRIMARKET APP

The mobile application has been developed with an aim to keep farmers abreast with the crop prices and discourage them to carry-out distress sale. Farmers can get information related to prices of crops in markets within 50km of their own device location using the AgriMarket Mobile App. This app automatically captures the location of the farmers using mobile GPS and fetches the market prices of crops which fall within the range of 50km. The prices of agri commodities are sourced from the Agmarknet portal. Currently, the apps is available in English and Hindi languages.

20. BETI BACHAO BETI PADHAO

The campaign aims at ensuring girls are born, nurtured and educated without discrimination to become empowered citizens of this country. The campaign interlinks National, State and District level interventions with community level action in 100 districts, bringing together different stakeholders for accelerated impact. The initiatives youtube channel show various videos related to the campaign.

21. BHIM (BHARAT INTERFACE FOR MONEY)

Bharat Interface for Money (BHIM) is an app that makes payment transactions simple, easy and quick using Unified Payments Interface (UPI). It enables direct bank to bank payments instantly and collect money using a Mobile number or Payment address. Bharat Interface for Money app is currently available on Android and it is downloadable from Google Playstore, for smart phones.

22. CRIME AND CRIMINAL TRACKING NETWORK & SYSTEMS (CCTNS)

Crime and Criminal Tracking Network & Systems (CCTNS) is a plan scheme conceived in the light of experience of a non-plan scheme namely - Common Integrated Police Application (CIPA). CCTNS aims at creating a comprehensive and integrated system for enhancing the efficiency and effectiveness of policing through adopting of principle of e-Governance and creation of a nationwide networking infrastructure for evolution of IT-enabled-state-of-the-art tracking system around 'Investigation of crime and detection of criminals'.

23. CROP INSURANCE MOBILE APP

Crop insurance mobile app can be used to calculate the insurance premium for notified crops based on area, coverage amount and loan amount in case of loanee farmer. It can also be used to get details of normal sum insured, extended sum insured, premium details and subsidy information of any notified crop in any notified area.

24. DIGITAL AIIMS

The first step in the Digital AIIMS project was taken in January 2015 with the creation of an effective linkage between AIIMS, Unique Identification Authority of India (UIDAI) and the Ministry of Electronics and Information Technology (MeiTY). A unique health identification number for every patient visiting AIIMS was generated on an Aadhar platform. The Unique Health Identification Number gave every Patient visiting AIIMS a Digital Identity.

25. E-GRANTHALAYA

e-Granthalaya is an Integrated Library Management Software developed by National Informatics Centre,(NIC), Department of Electronics & Information Technology. The application is useful for automation of in-house activities of libraries and to provide various online member services. The software provides built-in Web OPAC interface to publish the library catalogue over Internet. The software is UNICODE Compliant, thus, supports data entry in local languages.

26. E-PANCHAYAT

e-Panchayat is an e-Governance initiative for the rural sector providing comprehensive software solution attempting automation of Gram Panchayat functions. It is a platform for panchayat representatives to connect with rest of the world, which aims to bring out the local voices by empowering the local communities to showcase and share local social, cultural and economic practices, stories and challenges.

27. EBIZ

eBiz is being implemented by Infosys Technologies Limited (Infosys) under the guidance and aegis of Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce & Industry, Government of India. The focus of eBiz is to improve the business environment in the country by enabling fast and efficient access to Government-to-Business (G2B) services through an online portal. This will help in reducing unnecessary delays in various regulatory processes required to start and run businesses.

28. ECI EVM TRACKING

It is a GPRS based mobile application for ECI Officials to scan barcode on EVM machines (BU or CU or VVPAT), which is used in Polls.

29. EDISTRICT

The e-District Mission Mode Project (MMP) is envisaged to strengthen the district administration of the States by providing ICT support to the participating departments and district administration in terms of providing centralized software application for selected category of citizen services and training for staff of the departments with a view to improve delivery of the citizen services being rendered by these departments. Services developed under e-District project would be delivered through various delivery channels like: · Direct access by Citizens through e-District portal as a registered user. · Existing Atal Jana Snehi Kendra's / B1 / K1 service centres. · Common Service Centres (To be established upto Grama Panchayat Level).

30. E-HOSPITAL

The e-Hospital application is a Hospital Management Information System (HMIS) for internal workflows and processes of hospitals. This one-stop solution helps in connecting patients, hospitals and doctors on a single digital platform. The application is developed based on the global healthcare standards like HL7, SNOMED-CT, ICD10 and LOINC, and Meta Data and Data Standards (MDDS) published by the Ministry of Health & Family Welfare (MoHFW). e-Hospital is made available to Central Government/ State Government/ Autonomous/ Cooperative hospitals on cloud through SaaS (Software as a Service) model.

31. EMSIPS

The electronic MSIPS (e-MSIPS) Application System enables online submission and scrutiny of applications submitted to Ministry of Electronics and Information Technology (MeitY) under the Modified Special Incentive Package Scheme (MSIPS) and Electronics Manufacturing Cluster (EMC) schemes. All registered users can submit their applications in the system, using the forms designed for the same. The system will enable online scrutiny of applications and online generation of responses to the applicant. The applicants can view the response in the system.

32. ENAM

National Agriculture Market (NAM) is a pan-India electronic trading portal which networks the existing APMC (Agriculture Produce Marketing Committee) mandis to create a unified national market for agricultural commodities. The NAM Portal provides a single window service for all APMC related information and services. This includes commodity arrivals and prices, buy and sell trade offers and provision to respond to trade offers, among other services. While material flow (agriculture produce) continues to happen through mandis, an online market reduces transaction costs and information asymmetry.

33. E-PATHSHALA

Developed by NCERT, e-Pathshala showcases and disseminates all educational e-resources including textbooks, audio, video, periodicals and a variety of other print and non-print materials through website and mobile app. The platform addresses the dual challenge of reaching out to a diverse clientele and bridging the digital divide (geographical, socio-cultural and linguistic), offering comparable quality of e-contents. All the concerned stakeholders such as students, teachers, educators and parents can access e-books through multiple technology platforms i.e. mobile phones (android, iOS and Windows platforms), and tablets (as e-pub) and on web through laptops and desktops.

34. EPFO WEB PORTAL & MOBILE APP

The web portal for Employees' Provident Funds Ordinance allows employees to check their EPF balance through an ePassbook which is an online version of their physical passbook. The mobile app allows the members to activate their UAN accounts from the comfort of their mobile phones and can also access their accounts for viewing their monthly credits through the passbook as well view their details available with EPFO. Similarly the EPF pensioners have been given the facility to access their pension disbursement details through this mobile app. Likewise, the employer can also view their remittance details.

35. E-PROCUREMENT PORTAL (CPP)

The Central Public Procurement portal of the Government of India facilitates all the Central Government organizations to publish their Tender Enquiries, Corrigendum and Award of Contract details. The primary objective of this portal is to provide a single p oint access to the information on procurements made across various central government organization.

36. GOODS AND SERVICE TAX NETWORK (GSTN)

The GST System Project is a unique and complex IT initiative. It is unique as it seeks, for the first time to establish a uniform interface for the tax payer and a common and shared IT infrastructure between the Centre and States. The portal envisions becoming a trusted National Information Utility (NIU) which provides reliable, efficient and robust IT Backbone for the smooth functioning of the Goods & Services Tax regimen enabling economic agents to leverage the entire nation as One Market with minimal Indirect Tax compliance cost.

37. MKISAN

mKisan SMS Portal has been conceptualised to give a quantum leap in coverage of farmers and geographical area in a timely, specific, holistic and need based knowledge dissemination among the farmers by leveraging the power of mobile telephony in such a way that all sectors use this platform to not only reach out to the farmers but also to address their concerns and queries.

38. NIRBHAYA APP

Nirbhaya: Be Fearless© is an android emergency application, which can send a distress call or emergency message to a specified contact or group in an emergency situation faced by a woman or any other individual in general. Correct Location, Information and Communication, with and from the app is dependent upon the basic hardware/software requirements, like - Active Data plan, SMS plan, minimum talk time and active GPS functionality.

39. PASSPORT SEVA PROJECT (PSP)

Passport Seva enables simple, efficient and transparent processes for delivery of passport and related services. Apart from creating a countrywide networked environment for Government staff, it integrates with the State Police for physical verification of applicant's credentials and with India Post for delivery of passports. The Passport Seva Project is transforming passport and related services in India to provide a best-in-class experience to Indian citizens. PSP is enabling MEA to deliver passport services in a reliable, convenient and transparent manner, within defined service levels.

40. SWATCH BHAARAT APP

The Swachhta Abhiyan has turned into a National Movement with citizens now becoming active participants in cleanliness activities across the nation. The dream of a 'Clean India' once seen by Mahatma Gandhi is being realized with millions of people across the country joining the cleanliness initiatives of the government departments, NGOs and local community centres to make India

41. SWAYAM

SWAYAM seeks to bridge the digital divide for students who have hitherto remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy.This is done through an indigenous developed IT platform that facilitates hosting of all the courses, taught in classrooms from 9th class till post-graduation to be accessed by anyone, anywhere at any time.

42. AADHAAR

Aadhaar identity platform is one of the key pillars of 'Digital India', wherein every resident of the country is provided with a unique identity or Aadhaar number. The largest biometrics based identification system in the world, Aadhaar is a strategic policy tool for social and financial inclusion, public sector delivery reforms, managing fiscal budgets, increase convenience and promote hassle-free people-centric governance. It is unique and robust enough to eliminate duplicate or fake identities and may be used as a basis/primary identifier to roll out several Government welfare schemes and programmes for effective service delivery thereby promoting transparency and good governance.

The above are some of the main digitalisation schemes of Indian government for betterment of lives of common public so that the common man cannot affect due lack or shortage of services in the society for better living.

CONCLUSION

The list of potential benefits from digitisation of public services will be a long one. With digitalisation of public services by government of India is the sheer potential to transform the lives of citizens and positively impact the society and environment.

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Paradigm Shift in the Payment System

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The evolution of Payment system

Payment system is an arrangement for settling the value of commercial transactions arising out of buying and selling of goods and services. First, the settlement was through a barter system. When the concept of *money* was propounded, it became the means of settlement using pebbles first, and latter precious metals like gold and silver as coins. Latter, it evolved into paper money, called currency, which was used for settling buying and selling transactions and for transferring money from one person to another.

Then, the evolution gave birth to a banking system which changed the course of settlement and transfer of money's worth from person to person in a safer, quicker and convenient way. Banks became fulcrum on which monetary system of a country started balancing and revolving. This led to transfer of money from account to account without the physical transfer of currency. Human brain, in an effort to speed up the process of settlement, invented cheque. Cheque became a sophisticated way of settling transactions and accounts wherein cheques were cleared manually and physically but it took days. Human patience was running out and a solution was born as Core Banking System (CBS). The CBS enabled electronic clearing of cheques in T+1 day using MICR (Magnetic Ink Character Recognition) clearing systems and CTS (Cheque Truncation System). Then came the Big Bang! With the advent of Information and Communication Technology (ICT), instant transfer of money's worth and instant clearing of cheques became a reality.

ICT resulted in a 'paradigm shift' in the way we do shopping, from where we buy goods and services, and how we make payments. Today the norm is: E-Commerce and M-Commerce and the mode of payment is E-Payments and M-Payments. This new avenue has given birth to ICT dependent new payment instruments, and innovations are flooding the financial systems across the world.

Today, we have various types of payment instruments coexisting, meant to meet the requirements of different users in different circumstances – bank accounts, cheques, debit and credit cards, mobile wallets, online payments, prepaid payment instruments, etc. There are also various systems to meet the remittance requirements of users depending upon their time criticality and cost sensitivity – National Electronic Funds Transfer (NEFT), Immediate Payment Service (IMPS), Aadhaar Enabled Payment System (AEPS) and Unified Payments Interface (UPI). The need for making bulk and repetitive payments is met by systems such as Electronic Clearing Service (ECS), National Automated Clearing House (NACH) and Aadhaar Payment Bridge System (APBS). These systems of payment instruments and remittances, hitherto confined to an elite class, is going to become popular and common mode of payment and settlement of commercial transactions in India. Thanks to 'Demonetisation'. The transition is from physical transfer to virtual transfer of money's worth - an epidemic that would wipe out currency to a larger extent, though it may not become completely extinct.

Early history of Currency in India

First Rupee note in India was issued in 1862 by the British Government, printed by UK based company De La Rue which is incidentally today the world's largest currency note printer and supplier of paper used for the same. In 1920s, the British government decided to print currency in India and consequently they established currency printing press at Nasik, Maharashtra. In 1928, Five Rupee currency notes were printed from the Nasik press. As the demand increased, Indian government established a second printing press at Dewas, Madhya Pradesh. Till 1997, these two presses were printing all the currency notes. Due to heavy demand for notes, government of India outsourced printing of currency notes to American, Canadian and European companies. This involved a heavy cost and it was met with a lot of criticism at home. Hence, two more printing presses were established, one at Mysuru in 1999 and another at Salboni, West Bengal in 2000.

Though all the currencies were printed inland, paper for the same was procured from abroad. Currency paper producing mill, called Security Paper Mill was established at Hoshangabad, MP in the year 1968, but it could meet only small portion of currency note requirement and we were sourcing currency papers from different countries like Britain, Japan and Germany. In 2015, to meet our growing demand for currency papers, capacity of Hoshangabad Paper Mill was increased and a new Paper Mill was established at Mysuru near the printing press. These two are now almost able to supply currency paper to the currency note printing presses. It took almost 75 years for India to become self sufficient both in printing currency notes, and producing papers for the same. By producing currency papers in India, we are able to save around Rs.1,500 crores annually in the import bill.

The cash cycle

Issue of currency notes and management of currency is one of the core functions of the Reserve Bank of India. It is enshrined in the preamble to the RBI Act, 1934 as "…to regulate the issue of Bank Notes and keeping of reserves with a view to securing monetary stability in India and generally to operate the currency and credit system of the country to its advantage." The RBI prints and circulates currencies according to the demand and replacement of soiled currencies in its procession. The demand for currency in India is determined on the basis of an econometric model factoring GDP growth prospects, rate of inflation and denomination-wise disposal rate of soiled notes.

1) The cash cycle begins with printing of currencies in one of the four presses: Mysuru (Karnataka), Salboni (WB), Dewas (MP), and Nashik (Maharashtra).

2) After printing, they are transported to RBI's 19 Issue Offices located across the length and breadth of India.

3) From the Issue offices, currencies are transported to currency chests. These are actually

store houses where bank notes and rupee coins are stocked on behalf of the Reserve Bank of India. At present, there are 4422 currency chests.

4) From Currency Chests, currencies are distributed to bank branches coming under its jurisdiction.

5) Banks in turn circulate currencies to general public through their banking transaction.

6) The public presents the soiled notes to the tellers, who in return send them to back office for onward transmission to RBI.

7) After examining, soiled notes are destroyed and replacement indent is given to printing presses.

Data with the RBI shows that on an average, 75% of all notes in circulation is withdrawn and destroyed and an equivalent and additionally required currencies are printed every year. The cost of printing currency every year is around 25 Billion rupees.

Cost of Cash

The RBI and commercial banks incur a total cost of Rs.21,000 crores annually for currency operation and management. The cost of printing, managing and moving money around the country is huge. Cash can be lost or stolen, wet, torn, or become soiled over time. A significant amount of time and effort is expended in shepherding them through the system and finally into the consumer's hands. In the process of planning, printing, circulating and managing currencies, the RBI incurs the following costs: production cost, cash management, cash transport, interest cost of carrying cash at currency chest, cash in hand at branches, and ATMs. The various costs associated with currency management could be categorised as below.

No	Costs for:	Type of cost
1	Reserve Bank of India – prints currency	Currency Production and Operation cost
2	Cash-in-transit companies and other service providers	Fees, Operating costs, Insurance costs
3	Banks – disburse currencies to customers over their counters and collect soiled noted	Cash handling and processing costs, - Insurance costs, Costs for cash-in -transit companies,

		Loss of interests
4	Retail sector – who provide services of maintaining ATM, Transporting cash etc.	Loss of interests, Front office (payment process at cash desk), Back office- Cash handling costs, Insurance costs- Cost for cash-in transit companies - Safety equipment
5	Consumers	Fees, transit, waiting time, risk, and opportunity cost,

In other parts of the world, the central bank's role is over with printing of currencies and its cost is confined to this only. Rest of the activities is undertaken by commercial banks and the costs are borne by them. But in India, larger junk of cost is borne by the RBI.

One of the major expenditure is ATM management which includes: cost of location of ATMs, providing air conditioning and ensuring Uninterrupted Power Supply (UPS). They also require everyday care like dispensing cash, paper replenishment, and journal management. This is called first line activity. An ATM usually contains four compartments of cash, called cassettes. Each cassette is filled with different denomination of cash which is done by Managed Service Providers (MSP). They also do real time remote monitoring, which provides information on the status of an ATM such as whether it is in-service or out of service. Remote monitoring can also indicate the reasons for being out of service. Adding and running ATMs alone costs banks Rs.1,520 crores a year. Every ATM transaction by a customer costs Rs.75 for the banker.

Another cost is the expenditure incurred for replacing soiled currency. The RBI disposed Rs.16.4 Billion worth of soiled notes and issued fresh ones against these in 2015-2016. Once the life of currency is over, they have to be replaced with new currencies. On an average, nearly 75% of currency in circulation gets replaced every year with new ones. The average age of the notes is usually less than a year, depending on the usage. Lower the value, higher the usage. It is estimated that, post demonetisation, to replace the entire stock of Rs.1,000 and Rs.500 notes with new notes, the RBI will be spending around Rs.12,000 crores.

Cost of cash for the consumers

Cash is not free for consumers too. The following costs are incurred by consumers of cash.

1. Fees. The cost paid by consumers to access cash, depending on the point of access and instrument used to receive cash. For example, ATMs charge fees beyond a particular number of transactions.
2. Transit. The amount of money spent by consumers for reaching cash access points like banks or ATMs and time spent traveling.
3. Queue. This is the cost of waiting time in queue to get cash. This is more in a busy bank branched and ATMs.
4. Risks. Risk associated with carrying and holding cash – accidental loss or theft of cash etc.
5. Opportunity cost. The opportunity cost of holding cash includes: interest forgone, erosion of value due to inflation, etc.

The absolute cost of cash to consumers, based on average transit time and cash access costs are high in India. One research estimates that residents of Delhi alone spend 6 million hours and Rs.9.1 crores to obtain cash from ATMs and banks. From this we can extrapolate the cost and time spent all over India just for using cash. It is said that the direct cost of running a cash based economy is close to 0.25 % of India's GDP.

Cash drives shadow economy

Black money is one of India's biggest scourges and the cash is the engine that drives shadow economy. As cash transactions are difficult to trace people can easily launder money and evade paying tax. If the data provided by the government is to be believed, the size of black money in India is Rs.15-16 lakh crores. This is the money which is unaccounted, being used to finance shadow economy. They

are almost running a parallel government financing all illegal transactions. Most of them are used for financing terrorists, mafia gangs, buying and selling of real estate, elections, purchasing political decisions, betting, trafficking, and for hijacking democracy. This money has increased in alarming proportion recently.

The currency with people rose rapidly during the last three years–2013 to 2016, against deposits kept by people in banks. In 2007, currency in circulation was almost equal to bank deposits. But in the last three years, currency with Indians was more by 50 % than bank deposits. One can safely assume that this is due increase in corruption, unaccounted, and black money. Another worrying factor is counterfeit notes that are in circulation. It comes from the border across, mainly financing terrorism and illegal activities. The unaccounted money and illegal notes play havoc rendering policy initiatives ineffective and redundant. Demonetisation will put a short-term break on this.

Why is cash popular in India?

India is the second largest producer and user of currency notes, next only to China. India's cash intensity stands out in contrast to other developing countries. The value of notes and coins in circulation as a percentage of GDP in India is 12.04%, compared to 3.93% in Brazil, 5.32% in Mexico, and 3.72% in South Africa. According to data supplied by the Bank for International Settlements, the cash-GDP ratio is 3% in Sweden – a leader in cashless economy.

There are many reasons why cash remains the dominant form of payment. It is empowering for millions of unbanked families. It is an intuitive method of exchange and acts as a store of value. It doesn't come with the transaction fees as that of electronic payment methods. Cash provides a degree of privacy that more modern forms of payments are unable to guarantee.

Another reason is the lack of access to banking for a large part of the population as well as cash being the only means available for many. Universal banking is still a distant dream in India. The data from the Indian Finance Ministry shows that only about 32% of India's population has access to financial institution and other financial services. Even the distribution of bank branches are not uniform: it is highly skewed with a third of all bank branches being located in 60 Tier 1 and Tier 2 cities and towns.

Another fact is that half the India's output comes from small and informal sector where cash is the norm. Statistics show that the informal economy, nearly 90% of India's labor market and firms, account collectively for some 40% of GDP and all the transactions are on cash basis. For 60% percent of wage earners and workers in India, salary is distributed in cash. All these compelling reasons augment the use of cash albeit its negative consequences.

Reasons to shun cash

Summarizing the arguments above, the following reasons could be enlisted to shun cash.

1. Cost of currency printing and management is huge in India. The RBI and commercial banks spend a considerable amount.
2. The cost of using cash by the consumer is large. Consumers in India spend a great deal of amount and time for fetching cash.
3. The cost of providing large network of ATMs, and bank branches to disperse cash in the system is huge.
4. Cash drives the shadow economy and is responsible for informality in the markets.
5. Tax collection in India is abysmally low because of use of cash which is not accounted and shown in the books of accounts. Government loses a hefty sum on this front.
6. A huge amount of cash never enters banking system thus dampening 'credit creation' process of banks.
7. Unaccounted cash is responsible for financing all illegal transactions.
8. Excess cash in the economy is responsible for inflation, and erosion of value and purchasing power of money.

9. Corruption thrives on cash. Democratic process is vitiated by corruption and cash is the 'sole proprietor' in this regard.
10. There are a lot of risks associated with holding cash: loss of value, safety, security, theft, and accidental loss.
11. There is one more reason, if not last, to avoid handling cash as they are the carriers of germs and diseases. From hygiene point of view, we need to shun cash.

Going cashless – the next best alternative

We are making a steady progress towards becoming a 'cashless economy'. It is not an option but a compulsion driven by economic prudence. Finance Minister Arun Jaitley in his press meet said after demonetisation "it will take India towards a cashless economy, it doesn't merely push the country in that direction, but significantly pushes it". If India has to contain and control unaccounted money, it has to necessarily shift from cash dependent economy to cashless economy. Cashless economy is a situation in which the flow of cash within an economy is non-existent and all transactions are done through electronic media channels such as direct debit, credit and debit cards, electronic clearing, payment systems such as Immediate Payment Service (IMPS), National Electronic Funds Transfer (NEFT) and Real Time Gross Settlement (RTGS). By reducing cash transactions, and by boosting E-payment system, we can achieve the twin objective of economic growth and financial inclusion.

The moment demonetisation was announced, our obsession with cash started melting. Once the notes lost its 'currency', we started switching over to other modes of payment. PaU India (E-Commerce portal) registered 80% increase in transaction just within 24 hours of demonetisation. Paytm, a major mobile payment operator, witnessed five million daily usage post demonetisation as against their average transaction of three million. It also registered 700% increase in overall traffic, and 1000 % growth in the amount of money added to its account in the first two days itself. Likewise, 'Ola Money' registered 1500% increase it its e-wallet. All these data suggests that consumers who are otherwise using cash mode of payments, have started switching over to E-payments. There was 70% surge in debit card usage, and that of credit card usage increased by 40% which implies first time card usage by inactive debit/credit card holders. All these data indicate that when compelled Indians are ready to switch over to cashless mode. By adopting E-payments, M-payments, and by reducing cash transaction, it will be easy for the tax authorities to crack down on tax evasion. This becomes a self checking mechanism for bringing more and more people within the tax net and to curb black and unaccounted money. But are we ready for this paradigm shift?

The challenge !

We are yet to fully harness the potential of IT sector. The Institute for Business in Global Context and Tufts University in their research titled 'cost of cash India' observed that "despite its prowess in the telecommunications field, India has been left behind by its peers in mobile payments. Though India has a fiercely competitive telecommunications market, possesses a well-developed financial system, and is a widely acknowledged technology exporter, fewer than 2% of Indians have used a mobile phone to receive a payment, compared to over 60% of Kenyans and 11% of Nigerians".

Recently, we became the second largest users of internet pushing the US to third place. As of June 2016, there were 342 million internet users with a penetration rate of 27%. This means the remaining 73% or 912 millions do not have internet access. Out of 833 million who live in rural areas, only 13% (108 million) have internet connections, whereas 58 % of people in urban areas have internet facility. How are we going bridge this rural and urban divide?

Another hurdle is the penetration of smart phones. For M-payments and E-Wallets a smart phone is a prerequisite. Though ours is fastest-growing smart phone market in Asia-Pacific region, only 17 percent of adults own a smart phone according to one research. Added to this is the slow speed of internet service which would discourage the user from using E-Wallets and M-Payments. The average time to load a page on a mobile phone is 5.5 seconds in India which is way behind when compared to 2.6 seconds in China, 4.5 in Sri Lanka and 4.9 seconds in Bangaledesh.

The current infrastructure to handle mammoth volume of E-payments transactions is highly insufficient. The growth in infrastructure has not kept pace with the growth in debit and credit cards. While debit cards registered a growth of 64% between October 2013 and October 2015, the number of ATMs grew about 43%, while point-of-sale machines increased nearly 28% and people need to realize the importance of E-payments and adopt it.

If these challenges are addressed on a war footing, there is a greater scope for Indians to switch over to alternate payment systems, and we may usher in a new world of cashless economy.

Digitalisation in Indian Banking: A Keen Role of Fin-Tech in Indian Banking Sector towards Digitalisation

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Abstract
In the present scenario, the demand of banking is anytime, anywhere banking, this requires innovative robust secure optimized and ready to meet the expectations of empowered and tech savvy customers. Digital transformation is just moving from traditional banking to a digital world. Now-a-days people are very dependent on technology and internet to fulfill each and every common need of man to be done easily and quickly, this facility of being work done quickly lead to the entrance of digitalisation all fields and sectors of the economy occupied with digital concepts. The global economy is undergoing transformation at a rapid pace and technology is instrumental for this change. Banking is no longer limited to traditional brick and mortar system rather it is shifting to brick and click system and virtual banking. The recent policy decision by the government of India to tackle the quicker economic progress is the promotion of money less economy or cash less economy or digital economy, which creates a platform to maintain accountability for every transaction and helps to control corruption. The modern policy initiative by the government of India is termination of five hundred and thousand denominations from circulation in the country. This enables the transparency in the governance system by encouraging the digital payments. This was fundamental for cash less economy is the demonetization. Fin-Tech is known as Financial Technologies has exploded across the globe. Exclusively banking sector will be strengthened by implementing and adopting the upcoming Financial Technologies. Customers are the valuable assets to every bank and banks are always trying to fulfill customers' needs with high priority. Financial inclusion is possible with the help of only Fin-Tech adoption in the banking sector. Easy use of digital banking can accelerate the integration of unbanked economy to the mainstream.

Keywords: Digitalisation, Indian banking sector, Fin-Tech, Cashless economy, E-banking

Introduction

"Government of India is with a vision to transform India into a digitally empowered society and knowledge economy. 'Faceless', 'Paperless', and 'Cashless' is one of professed role of Digital India."

Banking system always has an important role to play in every country's economy. It is vital for any nation as it provides for the needs of credit for all the sections of the society. India is not only the world's largest independent democracy but it is also an emerging economic giant. Now-a-days people are totally dependent on technology and internet to fulfill each and every common need of man to be done easily and quickly, this facility of being work done quickly lead to the entrance of digitalisation all fields and sectors of the economy occupied with digital concepts. The buzzword in India now a day is creating a cashless economy. The successful implementation of demonetization, leads the government to implement digital transactions. Digitalisation is the process of converting data into digital format. Digitalisation means the adoption of technology. The main objective of the Government of India is make 25 billion digital transactions through multiple facilities. Digitalisation of banking requires platforms like Unified Payment Interface (UPI), Aadhar Pay, Debit Cards and Immediate Payment Service (IMPS).

The Government of India has enforced a major change in the in the economy by terminating the five hundred and thousand denominations on November 8, 2016.The demonetization is one of the significant measures to tackle the quicker economic progress of our country. The demonetization has four different aspects like combat with corruption, black money, counterfeiting currency and funding

for terrorism activities in the economy. Now in the present era drastically changed information and communication technology leads to make a positive impact on the economy. The digital economy can also be called as Internet Economy or Web Economy. It has impacted all the sectors of the economy and social activities, for instance: retail, transports, financial services, manufacturing, education, healthcare, media and so on.

Various developments have taken place in Indian banking. Among the various developments, technology has influenced the way customer interacts with banks. Electronic channels and products such as ATMs, cards, internet banking and mobile banking are offered along with traditional branch channel. Differences in the usage of channels exist between developed countries and developing countries. Evidence suggests that there is a shift from traditional channel to electronic channels. Fin-Tech is playing very important role in digitalisation of Indian banking sector. Fin-Tech is a way to become strong in digital payments and transactions. Every bank has the mobile banking apps apart from that many of the other Fin-Tech companies providing digital payment services. Recently United Payments Interface (UPI) developed by the National Payments Corporation of India (NCPI), Paytm app, Google has launched payments app Google app (tez), Samsung has launched Samsung pay, Amazon has introduced Amazon pay and Apple is looking to introduce Apple pay.

Digital Banking

The digital revolution in banking has only just begun. Today we are in phase one, where most traditional banks offer their customers high-quality web and mobile sites/apps. An alternate approach is one where digital becomes not merely an additional feature but a fully integrated mobile experience in which customers use their smart-phones or tablets to do everything from opening a new account and making payments to resolving credit-card billing disputes, all without ever setting foot in a physical branch.

The introduction of digital banking has revolutionized the banking sector and modified the whole procedure of simple bank transfers. The invention of ATMs and credit cards paved the way for the digitization of the banks. The commercial evolutions of the internet in the early 1990s completely overhaul the banking sector introducing the world to the online banking services. Digital banking is the digitization of doing the traditional banking activities and programs through online protocols and digital technologies. This includes activities like:

- Money Deposits, Withdrawals, and Transfers
- Checking/Saving Account Management
- Applying for Financial Products
- Loan Management
- Bill Pay
- Account Services

Meaning

"Digital banking means providing digital banking products and services available through different digital devices on user friendly way". Banking Product refers to processed without any paper or verbal communication with the client/customer under "user friendly way". The complex activities like upgrade of legacy systems, online processing, segmentation, CRM, channel and user Interface Management.

Difference between digital banking and online banking

Digital banking includes all kinds of online/Internet transactions for various purposes. They may include booking movie tickets, online shopping, using e-commerce websites to do transactions and using internet-banking services to make payments via transfers like NEFT transfers etc. So internet banking is use of the services related to online solution by a bank like transfers from one account to another. While Digital banking is the use of extensively offered and spread services through any online channel.

History of digital banking

Table-1: Technological Milestones in Indian Banks

Sl. No.	1980	1990	2000-10	2011-2018
1	MICR	ATMs	IMPS	Bio Metrics
2	Standard Cheques	Electronic Funds Transfer	RTGS	Mobile Banking
3	Encoders	Branch Connectivity	NEFT	Cheque Truncation
4	-	Computerization	NECS	UPI
5	-	-	Online Banking	USSD
6	-	-	Tele Banking	E-Wallet

(Source: Shetter, 2019)

Digitization in Indian Banking

Banks in India are moving conventional banking to digital banking. Everyone is eyewitness for that. Today it gets very seriousness. For that, our Indian Government also takes a lot of remarkable actions towards this convenience banking practice. At present, it is moving towards digital banking services. Everything is going to take place in Indian banking sector is based on digitalized banking. Initially, our Indian banking sector started to use information technology with the introduction of personal computers. Then it slowly migrated to local area network (LAN) connectivity. With the help, this LAN, banking sector adopted core-banking platform, which created a lots of changes in the history-banking sector. Due to these advancements, the Indian banking sector came to bank banking, core - banking solutions (CBS) which helped to make convenient banking services through anywhere and anytime banking system.

Role of digitization in banking

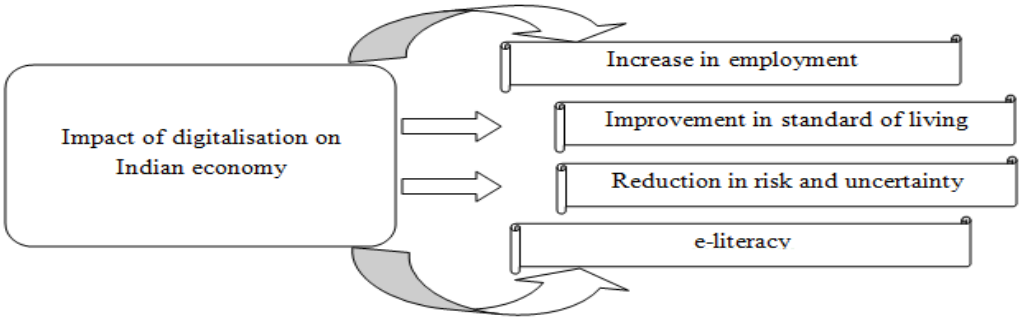
Banks are not just a part of our lives but have a significant role in our daily lives. For many, a day will not end without at least a single financial transaction. Thus, banks always try to adopt latest technologies to enhance customer experience. Digitization is not an option for the banking industry, rather it is inevitable because every industry is being digitized and banking sector is no exception. Mobile banking is increasing at a fast pace more than online banking.

Table 2: Volume of transactions in digital banking
(Volume in Millions)

Year	RTGS	Retail Electronic Clearing (ECS, NEFT, IMPS)	Prepaid Payment Instruments (M-Wallets, PPI Cards, Paper Vouchers)
2011-12	55.1	512.4	30.6
2012-13	68.5	694.1	66.9
2013-14	81.1	1108.3	133.6
2014-15	92.8	1687.4	314.5
2015-16	98.4	3141.5	7488.0
2016-17	107.8	4222.9	1963.7
2017-18	124.4	6382.4	3459.0

(Source: Shetter, 2019)

Impact of digitalisation on Indian economy



Advantages of digitization in banking

1. Improved customer experience.
2. Reduction of costs for banks and customers by using ATMs, cashless transactions etc.
3. With more digital data available with banks, they can take data-driven dynamic decisions by using digital analytics, which benefits both customers and banks.
4. Technology is unbiased. Everyone will be treated same at banks.
5. Number of customers will be increased for banks because of the increased convenience of banking.
6. Digitalisation reduces human errors.
7. Need of handling large amounts of cash will be reduced.
8. Opening and maintaining bank accounts are never been this easier.
9. Repetitive tasks will be eliminated by automation.
10. Rural and an urban gap will be eliminated.
11. With the increasing cashless transactions, fake currency threat will be reduced.
12. Productivity will be increased.

Disadvantages of digitization in banking

1. Digitalisation reduces the effort of employees and hence results in loss of jobs.
2. Some bank branches may die down to exist with the increasing use of online banking.
3. Banks will be more vulnerable to cyber-attacks.
4. Privacy may have to be compromised. No one can hide crores of rupees in banks and just act middle class.
5. It is not that banks are going to have less work, but it's just that the role of retail banking sector changes.
6. Rising unemployment rates.

What is Electronic Banking?

As the name implies, electronic banking or e-banking involves combination of electronic technology with the banking sector. It relates to provision of banking products and services through electronic delivery channel. Under this system, the banking services are delivered by way of a computer controlled system.

Features of E-Banking

- 24x 7 banking hour service
- No geographical barrier
- Easy Electronic Fund Transfer facility
- Better efficiency in Customer Relationship Management
- Making the payments of bills like electricity, telephone bills, and mobile recharge
- Easy view of balance of accounts and statements
- E-banking can bring doorstep services
- Order mini statements
- Mobile banking
- SMS banking services

E-Banking in India

In India, the traditional method of banking was through branch banking. It was in 1991, that with economic reforms, the banking industry also witnessed the new wave of banking methods. It was Saraf Committee, which was constituted by RBI in 1994 that recommended the use of Electronic Fund Transfer System (EFT), introduction of electronic clearing services and extension of Magnetic Ink Character Recognition (MICR) beyond metropolitan cities and branches. It was ICICI bank, which became the pioneer of e-banking in India .It was the first bank to introduce online banking services in 1996. Citibank, IndusInd Bank and HDFC Bank who provided internet-banking services in 1999 followed its initiatives. The important technological developments witnessed in the new age payment systems in India are:

1. Arrival of card- based payments- debit card, credit card- late 1980s and early 1990s.
2. Introduction of Electronic Clearing Service (ECS) in late 1990s
3. Introduction of Electronic Funds Transfer/ Special EFT in the early 2000s
4. Real Time Gross Settlement (RTGS) was introduced in March 2004
5. Introduction of NEFT (National Electronic Funds Transfer) 2005/06
6. Introduction of CTS (Cheque Truncation System) in the year 2008

Advantages of E-Banking

- E-banking provides a platform for anytime, anywhere banking.
- The customers can log on to their account using websites or cards anytime from anywhere without being concerned about the bank timings or bothering about the long bank queues.
- Banking transactions are unbounded by any geographical region or time.
- Transactions can be easily executed with a click of mouse, which is the biggest advantage of online banking.
- Customers benefit in form of better and advanced facilities being made available. If online errors or queries are responded speedily and in efficient manner, it helps the banks in maintaining their customer base.
- With the widespread penetration of internet, almost all the banks provide online services. So today, e-banking is not just a marketing tool but it's a necessity, which all banks need to have.

Challenges in adoption of E-Banking

Some issues and challenges are needed to address. Some of which are as mentioned below:

Security Risk: Security risk is the prominent challenge faced by the banks offering e-banking services. There are still many customers, who refuse to go for for e-banking services because they still do not find e-banking or online banking secure. Online banking frauds like phishing, spamming, spy ware, internet theft etc. are still very much prevalent and are a spoil to e-banking expansion. These security problems need to be addressed to win over the confidence of the customers.

Privacy Risk: There is a risk of disclosing the private information of the customers with others. As all the information of the customers are available online, there is always a fear among the customers that their personal information may be shared by the banks with the marketing people.

Technical Difficulties: As e-banking is all about the use of technology, any technical error can withhold the banking process. The problem of banking websites going down, or jamming problem due to lot of rush on the websites, blocking of the cards , forgetting log-in passwords all these are technical problems may face by customers in using internet banking.

Customer Education: There are lots of users in India, who have still fear of using e-banking services because they are unaware either about their benefits or are unaware about the mode of usage. It is a big challenge for the banks to make to slowly equip all the customers in using e-banking facilities. Though

many people have shifted to use of ATMs and plastic cards, a lot needs to be done to make EFT and RTGS a popular banking mechanism among Indian users.

Role of Fin-Tech in Indian Banking Sector

Fin-Tech companies provide a way for legacy financial institutions to improve customer retention and preference. Data enrichment is an extremely powerful tools that quality Fin-Tech firms bring to the game. Fin-Tech firms provide an opportunity to enhance the portfolio diversification to fulfill customer needs. Most of Indian banks are providing online services to customers, online transactions has been increased year by year. The important reason for the increasing trend is demonetization process initiated by the RBI.

Table 3: Total RTGS transactions by customers

RTGS transactions by customers					
Year	2014-15	2015-16	2016-17	2017-18	2018-19
Customers	88,391,668	93,955,247	103,660,693	120,712,137	133,295,661

(Source: Genteela *et al*., 2019)

Table 4: Total NEFT transactions by banks in India

NEFT transactions and Value		
Year	**Transactions (in Millions)**	**Value (Rs. in Billions)**
2018-19	2319	227936
2017-18	1946	172229
2016-17	1621	120040
2015-16	1253	83273
2014-15	928	59804

(Source: Genteela *et al*., 2019)

Boosting to Fin-Tech, retail payments through National Payments Corporation of India (NPCI) has been increasing with considering growth. NPCI as an umbrella organization for operating retail payments and settlement systems in India is an initiative of Reserve Bank of India (RBI) and Indian Banks' Association (IBA) under the provisions of the Payment and Settlement Systems Act, 2007, for creating a robust Payment and Settlement Infrastructure in India.

Table 5: Year-wise retail payments through NPCI

(Volume in Millions, Value in Rs. Billions)

Year	Volume	Value
2014-15	1709.43	76111.29
2015-16	5406.41	85271.12
2016-17	7138.40	96626.07
2017-18	9855.60	113551.90
2018-19	16799.46	136711.10

(Source: Genteela *et al*., 2019)

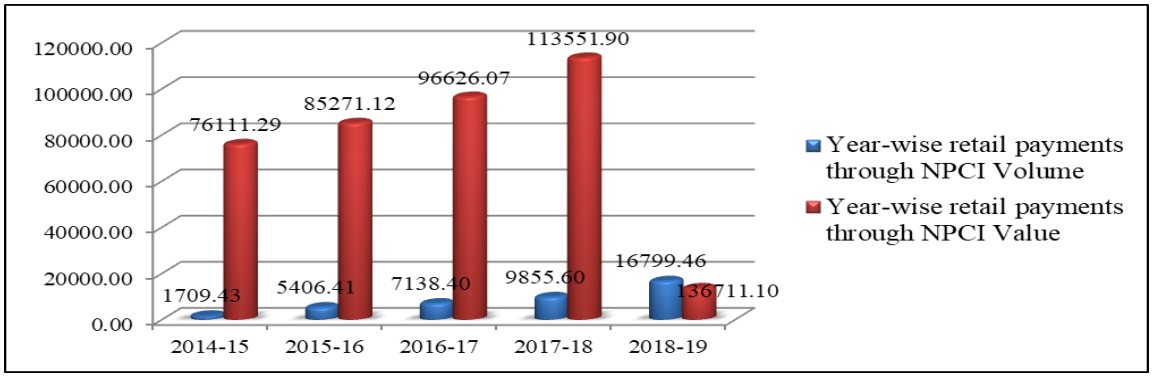


Fig. 1: Year-wise retail payments through NPCI

Conclusion

E-Banking is a non-reversible phenomenon which will gain more momentum in the coming years. With digitalisation of Indian economy and move to turn India into cashless society, e-banking is going to be strengthened. Many banks in India including the State bank of India, HDFC, and ICICI etc. are levying charges on cash transactions above a certain limit. In the current scenario, people go with innovation and technology to get their work done much smarter and faster. Economical Innovations that are sustainable and accessible will be able to generate more revenue and increase firm value while significantly reducing the resource requirements, cost and thereby enriches the environment. With the increasing usage of smart phones, digitalisation of banking sector is inevitable to catch up the increasing expectations of the world. It indeed reduced human errors and increased convenience.

With the help of digital banking, most businesses do not have to rely on the bank operation timings. The number of customer base has also increased because of the convenience in 'Anywhere Banking'. Digitization has reduced human errors. Digital banking is converting the brick and mortar banks into more greener and efficient places to operate. In the present scenario, people can check their bank account details, pay their bills online, transfer money to other accounts and all these can be done very comfortable at their residence. For this, the only requirement is the internet connection. As people want to have convenient banking services, they are very much happy to use this digital banking system than traditional banking system where the customer has to visit the bank's branch. On the other side, the technology has cyber threats, which should be properly covered by such a high protection system. Then, the digital banking would be the gift of this digital era people. Digital Banking is going to be mandatory in future largely as India may become a plastic oriented economy and there are chances for the paper money to be out of use in future.

Fin-Tech is one such path-breaking frugal area, which will address the issues in access and use of financial services without geographic constraints. Banks and Fin-Tech companies are playing a vital role in providing services to the customers in terms various cashless payments. All the banks are introduced their Mobile app to provide services to the customers and ease of doing transactions and reaching the unreached. Banks and Fin-Tech companies have to adopt the latest technological innovations to protect the data from the hackers. Now, most of banking companies are using the Block chain technology to safeguard the customer transactions.

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A New Wave of Digital Payments: Understanding the MSMEs Perspective

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ABSTRACT
The purpose of this particular academic endeavour is to study the factors impacting the adoption of digital payments among Micro, Small and Medium Enterprises (MSMEs). In India the phenomenal growth in fin-tech sector and rising internet penetration indicates a positive signal for the adoption of digital payments. For decades, cash has been ruling the heart and soul of Indian economy, given that many MSMEs across country still prefer to transact in cash mode. This give rise to need of a research which delve deep into factors effecting the MSMEs behaviour regarding the adoption of digital payments. Though plethora of research is available in context of consumer perspective, however to have a better insight on digital payments adoption, it is equally important to study the adoption from perspective of other stakeholders in the broader ecosystem of digital payments. We are discussing the factors like risk taking orientation, trust in digital payment service provider, perceived usefulness, environmental factors like trading partner pressure, government support and perceived security in context of MSMEs which can be further empirically studied by future researchers in this domain of study.

1. INTRODUCTION

Digital payments across the globe are witnessing a transformational phase. With the ever-rising number of smart phone users and internet penetration, the "digitalisation" of payments is going to reach a phenomenal level in coming time. According to RBI Payment and Settlement Act 2007, digital payments refer to "any transfer of funds which is initiated by a person by a way of instruction, authorisation 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 deposit or withdrawal of funds, transfers initiated by telephone, internet and card payment." In the present scenario where payments are becoming virtual, digital payments are primarily facilitated by various payment applications that stores card information rather than swiping of plastic cards. The term digital payment is of recent origin in academic literature owing to the phase of transformational innovation in payment landscape. Digital payments refer to those payments which are made in modes other than cash. The digital mode can be Debit card, Credit card, National Electronic Fund Transfer (NEFT), Real Time Gross Settlement (RTGS), Mobile banking, Prepaid Payment Instrument (PPI), Immediate Payment System (IMPS), Mobile wallet (Sivathanu, 2019). The digital payment is a broader term which encompasses not only new age digital mode like QR-codes, mobile based payments applications, but also traditional form of electronic transaction conducted through personal computers, laptops, plastic cards. Such holistic approach has been used by few researchers in their studies. During 2018-19 Reserve Bank of India recorded growth rate of 58.8 percent in digital transactions (volume basis) and in terms of value basis digital transactions marked growth by 19.5 percent (Mathew, 2019). The launch of Unified Payment Interface (UPI) by National Payment Council of India (NPCI) has attracted many private players in digital payment industry, this would further lead to massive growth in digital payments. The revolution in payment technology is bound to change the way of transacting in businesses and for them to have sustainable future, it is equally important to embrace this change. In context of business, Micro, Small and Medium Enterprises (MSMEs) sector has been reliant on cash mode of transacting for decades. Somehow, recent moves of Demonetisation and Good & Service Tax (GST) by government has made MSMEs to ponder over the issue of digital

payments. India despite having phenomenal digital transformation journey holds a substantial room for further improvement, in order to realise the dream of Digital India (Kaka et al., 2019). According to survey conducted by BCG, consumer digital payments hog entire limelight for deciding the fate map of digital payments in India, but it lacks the potential to sustain the shifts towards digital payments. Moreover, MSMEs will be more important stakeholders in realising the goal of sustained cash-lite economy (Venkatesh, 2017). MSME sector is definitely important for weaving the fabric of growth in economy and digital payments are most basic tools of financial technology which can possibly offer them some benefits. This will ease them from pain points associated with transacting in cash mode like transparency issues, problem of payments settlement delays, lack of proper records to name a few. Among other digital ancillary services, payments emerge as a most important business enabler for MSMEs by addressing ground level concerns (IAMAI, 2019). In context of present study, an effort has been made to discuss the factors that influence adoption of digital payments. This would help in gaining a deeper insight about the transformation in payment landscape across MSMEs, where cash has been the most frequently used mode of transacting for decades. In this regard, Risk taking Orientation is an important domain which depicts the forte of embracing change rather than resisting it. Keeping in mind the requirements of present study, the factor of risk-taking orientation is being considered in order to assess its role in influencing MSMEs owner/manager's capability to anticipate wisely the possibilities of optimising opportunities associated with realm of digital payments. They must be aware of transformations and trends in payment landscape in order to encash the benefits of digital shift in payment arena. In addition to this, literature has also stressed about the role of trust factor in influencing decision to adopt technology-based services. Chong (2013) stated that the trust is an important factor in online environment and its requirement doubles up in case of transactions with monetary aspect like m-payments (m-banking). The domain of perceived usefulness and perceived security is also relevant to study the behaviour towards digital payments solutions in the present digital arena where digital payment service providers are coming up with flexible tailored payment solutions to cater to the specific needs of MSMEs. Besides, there is this stark reality that no business can ever write its fortune in isolation, rather there is interdependence on other stakeholders in environment for its survival. This is apparent from studies which empirically proved the role of trading partners in pressurising their counterparts to adopt technology (Walker, Saffu and Mazurek, 2016; Awa, Ojiabo and Orokor, 2017). The role of various policy initiatives in this regard by government to boost up digital payment adoption is highly commendable, paving way to digital payment adoption among MSMEs. Based on this backdrop, the present study aims at discussion of aforesaid factors in understanding the paradigm shift towards digital payments that has potential to do wonders for MSMEs in attaining competitive advantage.

2. FACTORS AFFECTING ADOPTION OF DIGITAL PAYMENTS

2.1 RISK TAKING ORIENTATION

The term risk taking refers to the forte of pursuing choices which involve high amount of uncertainties associated with them (Perez -Luno et al. 2011). while seeking answers to how transition towards adoption of particular technology actually happens, considering the trait of risk taking is of paramount importance. Wiklund and Shepherd (2003) asserted that risk taking orientation reflects the willingness to delve into new opportunistic ventures, breaking away the shackles of established monotony. Scholars like Wells et al. (2010) and Looney et al. (2008) demonstrated the role of risk-taking orientation as a trait of human personality in influencing technology adoption. Chen (2014) asserted that high level of risk-taking orientation favourably affects the possibilities of exploring IT innovation for business. With ever rising trend of dynamism in business environment, at present those who are in possession of risk-taking ability can manage to survive. Karimi and Walter (2016) remarked the positive association between the entrepreneurial traits of risk taking in embracing disruptive business model involving move towards digitization in context of traditional print media. At present payment landscape is undergoing a major overhaul in terms of shift from realm of physical cash towards the realm of virtual payment modes. The business owner/manager with high tendency of undertaking risk ingrained in their character, are more likely to trust digital payment service provider in the due process of adopting digital payments solutions for their respective businesses. Risk taking being an important aspect of personality holds the potential of impacting trust on digital payment service provider

significantly. In context of technology adoption studies, scholars have endeavoured to investigate the impact of personality traits on the trust (Krauter and Faullant 2008). Further, Srite and Karahanna (2006) asserted that those who seek less amount of stability or are risk takers, generally have high level of positive reflections on online trust. The element of risk taking has far reaching consequences on trust building, so it should not be overlooked when it comes to understanding how trust is formed (Cook et al., 2005). Those who are not averse towards risk may find it easy to enter in trust alliance with digital payment service provider.

2.2 TRUST IN DIGITAL PAYMENT SERVICE PROVIDER

The domain of trust is being widely investigated in technology acceptance literature. The reason behind this is its potential to profoundly impact the decision of end user. Trust is basically a "sentiment of willingness" of one party to be vulnerable at the hands of another party, perhaps may be due to pretty high expectations that the other party will perform the required action in desirable manner (Mayer, Davis & Schoorman, 1995). Park, Amendah, Lee and Hyun (2019) asserted that trust in service provider has profound impact on intention to adopt m-payment. The feeling of distrust towards the service provider (mobile payment) certainly weighs up the level of anxiety in mind of potential adopter. Lee, Ryu and Lee (2019) remarked that it is worth mentioning fact that online virtual environment demands more trust in general and for online payment in particular, safety perhaps being the most important concern in technology acceptance. Verkijika (2018) stated in context of their study regarding m-commerce adoption that when users are convinced about the service provider as a potential "trust beacon", this would certainly impact adoption intention positively. Further, trust impacts the sentiments of technology adopter regarding its usefulness, reason being once potential users are satisfied with assessment of service provider on parameter of trust, they are likely to embrace technology. Koo and Wati (2010) empirically proved this association. Manser Payne et al. (2018) found empirical evidence supporting the positive association between user trust and actual usage of m-banking. They further asserted, once user realise that their doubts and uncertainties are being addressed with genuine positive response, they might end up embracing the technology. In the Indian context, digital payment service providers are under the constant scrutiny of RBI which inherently reduces the tendency of them being unreliable in their dealings.

2.3 PERCEIVED USEFULNESS OF DIGITAL PAYMENTS

The domain of perceived usefulness has been matter of intense focus in technology adoption literature. According to Davis (1989), Perceived Usefulness (PU) refers to operational benefits associated with usage of technologies. When a particular technology is perceived to be useful in terms of functional utility, this would impact the sentiments to embrace. Mohd Thas Thaker et al. (2019) empirically proved the positive significance of PU on intention to adopt m-banking. They put forth that once the potential user perceives the m-banking useful on the parameter of functionality, this would certainly impact the adoption. The functional utility of m-payment service in terms of facilitating payments by elevating the need of carrying cash and physical cards amplifies the tendency of its adoption (Ma et al., 2018). Scholars like Zhang, Lu and Kizildag (2018), Kapoor, Dwivedi, C. Piercy, Lal and Weerakkody (2014), and Lunney, Cunningham and Eastin, (2016) found empirical evidences that PU is a significant predictor of intention to adopt across their respective technology adoption studies. Upadhyay and Jahanyan (2016) investigated the role of perceived functional benefits of transfer payments facilitated by mobile, they found empirical evidence that the benefit of speedy payment transfer over traditional bank-based transfers amplifies the adoption of mobile money. The usefulness perceived by potential users like speedy payments within fractions of seconds, transparency, convenience of carrying virtual cash in form of Mobile Based Payments Apps to name a few, is likely to impact acceptance of digital payments.

2.4 ROLE OF ENVIRONMENTAL FACTORS

a) TRADING PARTNER PRESSURE

The business doesn't exist in isolation rather it is a part of broader ecosystem consisting of different stakeholders. The shape of the priorities of the business is often determined by the degree of dominance possessed by trading partners. Raghavan, Wani and Abraham (2018) put forth that businesses do end up adopting technology in response to the high pressure imposed by their trading

partner. They further asserted that it is a matter of strong substance in context of small and medium enterprises which depends on their dominant trade partner for survival. Al-Bakri and Katsioloudes (2015) in their study on e-commerce system adoption found empirical evidence in support of significant positive association between trading partner pressure and technology adoption. Further, Ching and Ellis (2004), cited in Hamad, Elbeltagi and El-Gohary (2018) confirmed the direct and positive association between trading partner pressure and adoption in context of e-commerce. Scholars such as Alrawabdeh, (2014); Nugroho, (2015); Crosby, Pattanayak, Verma and Kalyanaraman, (2016); Maqueira-Marin et al., (2017) and Clohessy, Acton and Rogers, (2019) investigated the impact of trading partner pressure across different technologies. Considering the pace of digitisation, wave of change is bound to felt and businesses are no exceptions to this. This would certainly impact their operations and interactions with customer, competitors and suppliers. For understanding the adoption from the perspective of MSMEs, it is worthy to consider the role of trading partner in onboarding their respective counterparts on digital payment platforms. such pressure from trading partners are vital enough to convince business owner/manager to revamp their business process of handling payments, in accord with their demands.

b) GOVERNMENT SUPPORT

The role of government support in encouraging technology adoption has been a matter of constant scholarly investigation. Chong and Ooi (2008), cited in Makgato and Bankole (2016) stated that government support can be in form of various policy endeavors, regulations or by addressing the need of infrastructure for promoting the acceptance of new technological solutions. Irma, Chong and Ram (2016) stated that the support of government is pertinent in encouraging technology adoption in general. This need of assistance became even more intense in case of small and medium enterprises which are reluctant to embrace e-business technologies and once the pace of adoption gets accelerated, the growth of economy also speeds up. In context of digital payments, various initiatives like Demonetization, Goods & Service Tax and Digital India Campaign has caused a shift from cash across the MSMEs sector, however rate of digitisation is highly uneven among businesses. Awa, Awara and Lebari (2015) asserted that lack of support from government multiplies the difficulties of encashing the opportunities offered by technological innovations. Lim, Baharudin and Low (2016) remarked that in context of developing countries the incentives by government to promote use of technology are of utmost importance. Further, Dahnil et al. (2014), cited in Chiu, Chen and Chen (2017) asserted that government support magnifies the possibility of embracing innovations among small and medium enterprises. Lee et al. (2014) investigated the role of government policy initiatives on technology adoption and found empirical evidences supporting favorable impact of policy initiatives on adoption. Role of government in influencing mobile banking adoption has also been confirmed by Ammar & Ahmed (2016). They asserted that government can accelerate the pace of technology diffusion by investing in required infrastructure. The support of government in boosting the pace of digitalisation across nation is likely to have favorable impact on adoption of digital payments. The strategic moves of government are of high relevance to boost up the adoption of digital payments in heavily cash reliant MSME sector.

2.5 PERCEIVED SECURITY

Perceived Security refers to the expectations of user that using any online payment technology will not involve of any kind of manipulation of their private information by the parties involved (Barkhordari, Nourollah, Mashayekhi, Mashayekhi & Ahangar, 2017). Quresh et al. (2008) stated that security is of utmost importance while accessing any particular service or performing certain task with the help of technology. Further Singh and Srivastava (2018) put forth that in order to influence the user intention, the security features must be enhanced by service provider, in context of their study on mobile banking. Perceived security also impacts the sentiments of user regarding the trust worthiness. This association has been proved empirically by Kumar et al. (2019). Assessing the role of perceived security would of great benefit in understanding the adoption of digital payments among MSMEs.

3. CONCLUSION

This academic initiative provides a conceptual overview of the factors that hold strong potential to impact the adoption of digital payments among MSMEs. Most of the previous academic works under

the emerging domain of digital payments adoption consider the adoption from consumer perspective. We have provided a vision to readers to reimagine the domain of digital transformations in payment in a new light. For understanding the relevance of factors discussed in above section in a more reliable manner, future academic endeavour in this regard can study these factors empirically in MSME sector. After the implementation of different policy initiatives like Demonetisation, GST MSMEs should gear up themselves for journey of digital transformations in payment arena that holds endless opportunities. Contribution of MSMEs in reshaping India as a cash-lite economy needs to be more vigorous in coming times.

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Prospects of e-Governance in Indian agricultural sector

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Abstract
India is heavily dependent on agricultural sector. Nearly, 74% people connected with agriculture and allied activity. Government is launching several schemes for the benefit of rural and urban people. So that must have needed increase transparency to electronic communication and there is seamless connectivity between Government and public. E-Governance Full utilization of information and communication technologies (ICTs) at government and the public sector and society. Development of any country can be judged by the scope of e-governance in that country. That will be useful to increase government project implementation on agricultural sector. Now a day almost all people living in urban areas avail the benefits of several schemes launched by the Government through various E-Portal. India's rural sector the majority of people possessed the occupation of agriculture so, we focusing on this area the companies like Insurance need to design their strategies and schemes suiting needs E-Governance.

Keywords: E-Governance, Agriculture, ITC, IT-Kiosk, KCC, India

Introduction

Agriculture is an important sector of the Indian economy as it contributes about 17 per cent to the total gross domestic product (GDP) and provides employment to over 60 per cent of the population. Indian agriculture has registered impressive growth over the last few decades. The Government of India aims to expand, strengthen and implement the Sub Mission on Agricultural Extension under the National Mission on Agricultural Extension and Technology (NMAET). Project of the National e-Governance Plan in Agriculture (NeGP-A) was introduced for the rapid growth in the agricultural sector with the help of Information and Communication Technologies. The Agriculture sector is gearing itself to make optimal use of the new information and communication technologies. At the Government of India level, a number of important initiatives have been taken to provide IT Hardware and connectivity to all organization involved in Agricultural Education, research, development and dissemination. Simultaneously Agricultural content development initiatives have been taken by Ministry of Agriculture, in collaboration of National Informatics Centre (NIC), to provide marketing information of various agricultural commodities to the farming community. The e-Agriculture Community of Practice is a global initiative launched in partnership with the e-agriculture Working Group in 2007 to enhance the role of ICT in agricultural development and food security. It provides an international framework to facilitate the processes of capturing, managing, and disseminating the lessons learned through national and regional activities, as well as the results and implications of multilateral processes related to the use of ICT in agriculture and rural development.

The e-Agriculture Community also provides the basis for the international community to monitor development and validation of conceptual models and meth- odologies, and to package and disseminate them once tested. Through its collective activities some additional outputs of the Community include: the development and strengthening of innovative mechanisms and processes for information exchange and communication, including normative guide- lines and tools being formulated, tested and disseminated to address the range of demands and capabilities of different Community members; empowering networks for exchange of new mechanisms and processes among

key stakeholders; relevant content in digital format being developed, filtered, mobilized and exchanged by community members; and other activities based on active partnerships and collaborative lesson-learning. The development and application of better customised technologies specific to agro-climatic conditions, farm size and level of agricultural development is the real challenge ahead for the policy makers. The bane of Indian agriculture is not lack of technologies and R&D efforts but inadequate and inefficient dissemination of relevant information to the farming sector (Bahl, 2008). In most of the developing countries, much of the agricultural information has been found out of date and irrelevant that is not applicable to small farmers' needs, leaving such farmers with very little information or resources to improve their productivity (Meera et al., 2004).

E-governance is the use of ICT by the government, civil society and political institutions to engage citizens through dialogue and feedback to promote their greater participation in the process of governance of these institutions. Thus, e-government can be viewed as a subset off e-governance, and its focus is largely on improving administrative efficiency and reducing administrative corruption. In the paper authors have discussed about the e-government initiative in India, its benefits, its acceptability in India and its impact in development of developing countrie (N. Jain; B. P. Agnihotri and A. Verma (2015).

What is e-Governance?

e-Governance means Electronic Governance. e-Governance can be defined as the application of information and communication technology (ICT) for providing government services, exchange of information, transactions, integration of previously existing services and information portals.

E-agriculture

e-Agriculture is a global Community of Practice, where people from all over the world exchange information, ideas, and resources related to the use of information and communication technologies (ICT) for sustainable agriculture and rural development. It is a related the field of agriculture and rural development practices.

FAO defined that "e agriculture" means information dissemination, access and exchange, communication and participation processes improvements around rural development.

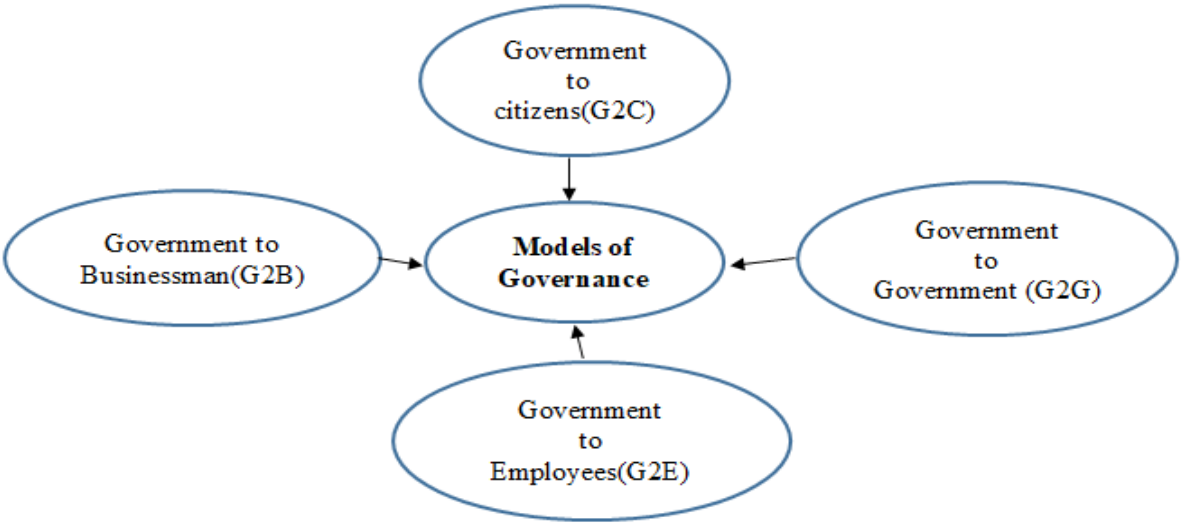
E-agriculture, therefore, describes an emerging field focused on the enhancement of agricultural and rural development through improved information and communication processes. More specifically, e-agriculture involves the conceptualization, design, development, evaluation and application of innovative ways to use information and communication technologies (ICTs) in the rural domain, with a primary focus on agriculture. (Barathi N. D. (2015).

e- Governance Benefits for Farmers

- To bring uniformity in governance to the stakeholders of the agricultural sector, especially the farmers.
- Implementation of quality and efficient delivery of services.
- Streamlining of various Government processes and procedures, thereby increasing the efficiency of the delivery of services.
- Integrating new initiatives with existing ones using ICT to create a sustainable balance.
- Improvements in compliance monitoring, MIS and the use of public funds.
- Transparency and accountability in the delivery of existing services and access to various services using different service delivery channels.
- Allocation of costs according to the type of service being delivered to the various stakeholders.
- Greater efficiency in the system, thereby offsetting the costs of the project over a period of time.
- Establishing Agriculture on-line services across country.
- Faster and efficient redressal service to farmers' grievances.

- Efficient and improved communication system among all the offices of the department.
- Use of e-mails services across the department.
- Improved transparency and accountability of the department.
- Direct feedback from farming community to the decision makers
- Better monitoring of government schemes, which directly impact on farmers.
- Efficient management (development, conservation, allocation and utilization).

E-Governance is depending on the specific types of services



Farmers can achieve reliable information through some tools

1. Mobile Applications

- Kisan Suvidha – This application gives information about the weather, dealers, market price, plant protection and expert advisories, among others.
- Pusha Krishi – It provides information on the latest farming and crop technologies.
- Crop Insurance – The Crop Insurance application provides information about various insurance schemes that are present for crops and their premium rates.
- Agri Market – Using this application, the farmer can know about the existing market prices of various crops.
- India Weather – It provides information on the weather prevailing for the next three or four days in 300 different cities across the country.

2. Web Applications

- Farmers' Portal – The website is exclusively meant for farmers and provides information about various seed, fertilizers, pesticides, dealers, and ethical farming practices.
- mKisan Portal – The platform enables scientists and other officials to send targeted text and voice messages to the farmers, advising them about various issues persisting in agriculture and the sectors related to it.
- Crop Insurance Portal – This website provides information related to getting crops insured and various crop insurance schemes available throughout the country.
- Participatory Guarantee System of India (PGS) Portal – This portal helps farmers to take an organic approach towards farming.

Why need of e-Agriculture in India?

Farmers get proper and timely information about different short and long dutration crop variety, cropping pattern. To minimize farming risks information on weather, production and cultivation techniques, seeds and fertilizers, plant nutrients and water usage. To reduce knowledge gaps and increase knowledge sharing for increasing productivity and boosting growth in rural areas. Regarding Funds and liability coverage through agriculture finance and agriculture insurance and crop insurance. Agriculture universities developed new techniques, which is used in increase production yield. Market infrastructure like warehouses and cold storage management regarding information technology solutions to facilitate the collection of agricultural information. A multi-media multipurpose community tele center in the village to enhance access to educational weather and health information (through internet, media, T.V.) and also facilitate communication between the village com- munity and the rest of the world.

Recent Advancement in India The application of ICT in agriculture through various organizations which has been evolving with various initiatives in order to encompassing the all agri value chain and knowledge technology. Most useful ICT technologies are-ITCs, E-choupal, Agriline, Gyandoot project, I-Kisan project of Nagarjun group of companies. Kisan Call centre, Bhoomi Project, Village knowledge center etc. Operating well throughout the country Which is useful to obtain Good data and information. It can be an important tool for decision making and for taking action by the farming community. ITcs will serve as a predominant role for fulfilling the needs of a Second green revolution. 4.1. Agriculture and ICTs in India Agricultural Strategy for Eleventh Plan, Planning Commission, Government of India, has pointed out that with the availability of land and water fixed, the goal of 4% growth in agriculture can be achieved only by increasing productivity per unit of scarce natural resources through effective use of improved technology.

e- Agriculture following components

1) Development of agricultural informatics and communication.
2) Strengthening of IT apparatus in agriculture and cooperation in states and UTs(AGRISNET).
3) IT apparatus at Department headquarters and its field offices.
4) Agricultural Resources Information Systems (AgRIS)
5) Kisan Call Centres.

Some important portals which has been Developed by Agricultural Informatics and Communications

(a) AGMARKNET Portal (http://agmarknet.nic.in);

(b) DACNET Portal (http:// dacnet.nic.in);

(c) DAC Portal (http://agricoop.nic.in);

(d) IN- TRADAC Portal (http://intradac.nic.in);

(e) SEEDNET Portal (http://seednet.gov.in);

(f) Agricultural Census Portal (http:// agcensus.nic.in).

The Department of Agriculture and Cooperation is supporting e-governance activities at the state agriculture and allied departments through AGRISNET, a state sector mission mode project, which aims at providing improved ser- vices to the farming community using Information and Communication Technology (ICT). Agricultural Resources Information System (AgRIS) project has been launched for implementation in two pilot districts of Rohtak (Dairy Typology) in Haryana and Banaskantha (Arid Typology) in Gujarat. Kisan Call Centers initiative aims to provide information to the farming community through toll-free telephone lines. Usage of GIS satellite imaging in India had been happening since a long time in India

Different ICT Initiatives in Indian Agriculture:

Initiative	Description
AGRISNET	An infrastructure network existing at block level facilitating agricultural offices, agricultural extension services and agribusiness activities to enhance rural development.
Digital green	The agri. information of local relevance is disseminated through digital video. The system consists of a digital video database prepared for farmers by farmers with the help of experts. The recordings are shown to individuals or small groups using laptops, DVD player, television and to communities through village cable network.
e-Sagu	eSagu provides personalized expert advice in a timely manner from sowing stage to harvest for small and marginal farmers at their door-step. The farm situation is brought to the expert in the form of digital photographs and text information. The expert advice after analysing the situation is prepared and is delivered to the concerned farmer on the same day or subsequent day.
Warana	The project provides access to a wide range of information including agriculture to the member of the cooperative in local language. It provides information on crops, market prices, employment schemes, educational opportunities, etc. The information is provided through the village information kiosks. The operators of these kiosks are the main linkage between the farmers and the information centre.
IKSL	The relevant information is delivered to the farmers on mobile phones through five voice message in local language. Customized solutions are provided to the farmers through helpline. The farmers can also speak to the experts on specific subject through special 'phone-in' programmes.
Agmarknet	This initiative provides daily market price and arrival information in respect of 300 commodities and 2000 varieties in eight local languages. The wide range of information on prices, arrival and other related aspects like grades, standards, packaging, etc. is collected and disseminated by networking major agricultural produce markets operating in the country.
Pravara	The project aims to connect a hundred villages in Ahmednagar to empower rural population and improve quality of life. The information on government scheme, agricultural marketing, healthcare, education, agro-processing and economic development are disseminated through IT centres established under the project.
iKisan	iKisan is a one-stop solution for farmers in providing information on crops, crop management techniques, fertilizers, pesticides and other related information like market updates and weather forecasts
Earik	Single window to improve the access to agricultural information and technology in northeastern India. It provides expert consultation on production, plant protection and marketing.
Digital Mandi	Digital Mandi is an electronic trading platform for agri-commodities to bring the benefit of ICT to farmers and traders by eliminating geographical barriers and temporal limitation and removing cash crunch through active participation of various financial institutions. Digital Mandi is inspired by the vision of Media Labs Asia sustainable village through culturally appropriate use of new technologies.
Akashganga	The initiative facilitates timely collection of milk, proper payments and generates higher income for dairy farmers. The system includes weighment of milk electronically, fat testing, capturing unique ID by the software and printing of pay slip and payment settlement.
aAQUA	aAQUA is a multilingual online problem solving system that facilitate

	farmers getting their queries answered by experts. The reply to the queries raised by the farmers is sent in one to three days depending on the nature of the problem.
eKrishi	The communication network established under eKrishi is utilised to educate farmers, provide real time information on prices, arrivals and issue disaster warning and weather forecast. The aim is to enable farmers to take informed decisions on sale of their produce and bring transparency in the working of the Madhya Pradesh State Agricultural Marketing Board
Mahindara Kisan Mitra	The initiate provide information on daily market prices, weather updates, crop advisories, agrirelated news, etc. The information is also available on other sections such as loans, insurance, Mandi database, cold storage and warehouses, etc. The farmers can also get motivated and take benefits from the success stories of other fellow farmers reported on the website.
Haryali Kisan Bazar	HKB has set up centre across different states to provide solutions to wide range of problems of farmers under one roof including agri-inputs, financial services, farm-output services and round the clock expert advice. The centres provide information on crops, latest technologies, weather forecast, market prices, customised services based on the farmer database maintained under the initiatives.
Fisher Friend	The information relevant for fishermen is provided in local language through mobile phones.
Mobile Advisory	The information covered are wave height, wind speed and director, potential fishing zones, relevant news, government schemes and market price.
KCC	The Kisan Call Centre utilises telecom infrastructure to provide customised information on various aspects of agriculture in local language using toll free number 1800-180-1551.
Reuters Market Light	Reuters Market Light provides mobile phone based customised information according to the individual farmer's preferences on crops, markets, and location. The information in local language in respect of over 440 crops and varieties, more than 1400 markets and 2800 weather locations are available across 13 states through SMS.
e-choupal	An initiative by ITC provides alternative marketing channel, information on weather, agricultural practices, input sales, etc. It is a kiosk located in a village and equipped with computer with internet access managed by trained sanchalak.
e-agri kiosk	An initiative by NABARD and Central Agricultural University. Touch screen kiosk for technology transfer among tribal farmers of Arunachal Pradesh.
MSSRF FFMA	Fisher Friend is a BREW-based application offered on a low cost CDMA handset with a graphic interface, an icon-based menu and programmable shortcut keys. In addition to safety and weather information, fishermen can receive the locations of fishing areas and real time market prices with one-click in their local language.

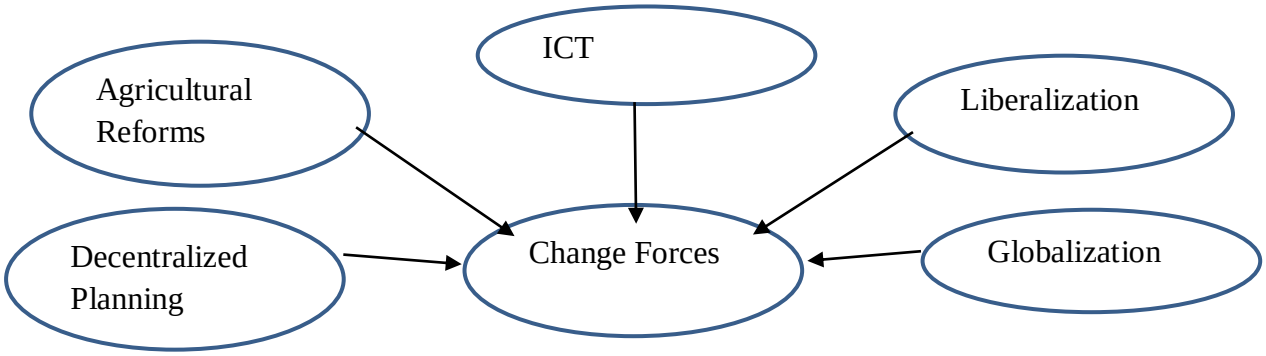
(Shalendra, K.C., Gummagolmath and Purushottam Sharma (2011).)

Above table reveals that a number of approaches have been followed by the service providers ranging from text to voice SMS, digital videos, tele-conferencing, Video-conferencing, tele-infrastructure, internet, etc. to get the information delivered to the end users effectively. Sanchalak is a key link to facilitate efficient delivery of information for some of the initiatives. The initiatives discussed above have been categorized on the basis of ownership and delivery mechanism in aboveTable.

CATEGORISATION OF ICT INITIATIVES IN INDIAN AGRICULTURE

Ownership/ Delivery mechanism	Government	Non-Government	Cooperative/Private/ Consortium
Web-based	AGRISNET, eKrishi, AGMARKNET	-	Pravara, Akashganga, iKisan, aAQUA, Mahindara Kisan Mitra, Haryali Kisan Bazar
Sanchalak (Facilitator between the user and service provider)	-	-	Warana, eSagu, iKisan, e-Choupal
Mobile/ Mixed Approach	KCC, Earik, Digital Mandi, e-Agri Kiosk	Fisher Friend Mobile Advisory, Digital green, MSSRF FFMA	IKSL, Reuters Market Light

E-Governance in Agriculture: Change Forces



E- Governance in Agriculture: Change Forces

(P. K. Suri and Sushil,2007)

Liberalization

Indian agricultural policy was driven by the objectives of achieving self-sufficiency in production and food security. The growth in the sector was based on extensive government intervention in product as well as input markets and domestic as well as international trade. The government policies included provision of price support, procurement and public distribution at subsidized prices, input subsidies including subsidized fertilizers, irrigation, electricity and credit. The process of economic liberalization launched in July 1991 introduced structural changes in the overall economy including agriculture. The liberalization process has forced the government to put in place the requisite policy framework and initiate actions for strengthening of the pre- and post- harvest infrastructure to tap the vast export potential of Indian agricultural and agro-based products (NCAER, 2005), FICCI 2007). The growing number of domestic and international agribusiness firms in the country indicates the buoyancy generated in the sector in the recent past. Liberalization is, therefore, considered as another force contributing to changes in the agriculture sector.

Globalization

The forces of globalization are becoming stronger day by day due to liberalization of trade and investments, multilateral agreements such as World Trade Organization (WTO), increased economies of scale, homogenization of customer needs, reduced cost of co-ordination due to telecommunication and IT developments. The process of globalization has given birth to global business systems. Global companies are making huge investments to create global value chains and develop global capabilities through alliances and acquisitions (Lasserre, 2003). Developing countries like India view this

phenomenon a fast track route for achieving higher levels of growth. Introduction of ICT based Pesticides Residue Monitoring Plan by Agricultural and Processed Foods Export Development Authority (APEDA) by integrating. all the stakeholders in the supply chain of grapes export including concerned central and state government departments. Thus, globalization can be seen as a major change driver that is influencing the government functioning either directly or indirectly.

Agricultural Reforms

Globalization and liberalization are likely to have the greatest impact on the farming community through their influence on the agricultural sector, terms of trade, availability and cost of inputs, and new investments in the agribusiness sector (Singh, 2007). Large scale structural changes have been initiated in the agricultural production and marketing systems. On the production side, government is creating an environment which could encourage farmers to adopt demand-driven production strategies instead of sticking to traditional cropping systems. On the marketing front, developmental schemes have been launched aiming at strengthening of marketing infrastructure, grading and standardization facilities besides creating storage facilities for perishable and non-perishable agricultural produce. Steps like formulation of a model Agricultural Produce Marketing Committee (APMC) Act, for adoption by all the States, permitting alternate marketing channels, passing of the 'National Warehouse Receipt System' by Parliament, ongoing attempts to harmonize the national AGMARK standards with Codex Alimentarious standards, and permitting future trading of agricultural produce, etc. reflect the expected re-orientation of the conventional agribusiness supply chains in near future (NCAER, 2006). Agricultural research and extension systems are also being geared up to address new challenges. Ongoing reforms in agriculture are, therefore, perceived as a change force.

ICT Induced Opportunities

Agriculture sector necessary content backbone, for creating digital opportunities at grassroots, is being built under ambitious AGRISNET and AGMARKNET mission mode projects by the Ministry of Agriculture. These initiatives, together with reforms in agricultural marketing which include amendment of APMC Act to permit e marketing, promotion of direct marketing, National Warehousing Receipt System, Grading and standardization facilities at the grassroots level, setting up of rural godowns and strengthening of marketing infrastructure are paving the way for the ICT enabled direct marketing of agricultural produce. It is expected that the ICT enabled commodity trade flows will be a reality in India in near future. The opportunities likely to be created with the large scale application of the ICT in the Indian agriculture sector have the potential of bringing unprecedented changes and is thus considered as another major change force. The above discussion tried to throw light on some of the major continuity and change forces operating in the agriculture sector in India. Based on the learning, the linkage between 'Simultaneous Management of Change and Continuity Forces' and 'e-Governance in Agriculture' would be explored further in the following sections.

Conclusion

Agriculture is crucial resource in India. Now a day's agriculture productivity level is diminishing. India is the country which is fully depended agriculture. In case the same will be continuing in India, totally it will be spoiled and destroyed. Indian government provides more facilities for the farmers to improve their status as well as productivity. All the facilities and plans are not reaching farmers properly. Most of the farmers do not know about using the new technologies in agriculture. Hence government makes plans to create the awareness to knowing about the facilities and plans. After that they can utilize all the facilities for improving the productivity. Only seven states of India were considered e-governance.

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Electronic Gateway: An Anticipative Approach towards Modern Payment System

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ABSTRACT
This paper has focus on the impact of electronic gateway for transaction system in Indian perspective that how and why transactions without cash are required for economic rehabilitation. This study comprises the concepts and consequences, its challenges of cashless system. Some objectives like its reliability and durability, future prospects and customer perceptions are considered for better output. A structured questionnaire was prepared for data collection with the help of 100 sample size and it comprises data interpretation with the result that it is durable and reliable up to some extent for economic rehabilitation.

Keywords: Rehabilitation, Electronic Gateway, Stakeholders.

INTRODUCTION

"Economies with the expectation of minimum utilization of paper currency are known as cashless economy". In civilized century, where innovations and technology becomes the necessity of life, electronic gateway system for payments drives the qualitative economic establishment. In the past decades, uses of debit and ATM card have increases for only withdrawal of currency from ATM and only 5% transactions were carried out digitally. According to Pradeep H. Tawde (2017), we are the fourth largest economy using cash and it contributes around 12% of GDP in India. Less banking habits due to the lower literacy rate, insecurity, poor connectivity, lack of proper digital infrastructure etc are some of the basic hurdles of cashless economy. RBI, ministry of finance and other policy makers are supposed to develop various strategies for promotion and as well as strict provisions of digital and cashless payment method in some specific sector. Among all, retail sector generates largest number of employment in India and number of cases related to tax evasion was caught from retailers just because of cash transaction According to Dr. Mrs Asha Sharma (2017), retailers from unorganized sector generally don't accept debit and credit cards due to deficiency of proper digital infrastructure for transaction. Generally jewelry merchant and gold traders approach to their customers to go with cash against debit card or online transaction to save 2 or 3% extra service charge. Customers are uncomfortable some times and having less faith is also one of the basic reasons to avoid cashless or digital transactions. The provisions should develop by the government which reduces extra service charge and offer cash back facilities for the customers specially to adopt cashless method. The benefits of cashless transaction are never considered by the peoples before and it's a common perception that lots of risk associated with cashless transaction but the scenario has change, the new era of fast moving economy consider number of benefits associated with cashless transaction like avoidance of carrying large amount of cash, unaccounted income can be avoided due to tax evasion, transparency in the transaction, printing and floatation cost of currency should be reduce and so many hidden benefits are also over there. In the tribal state like Chhattisgarh, where limited regions are capable to avail the services regarding cashless transaction with proper financial infrastructure and rest of the areas are still consider as an under developed with limited technological scope, hopeless literacy level, number of banks accounts are limited and peoples are still struggling for their survival and lots of basic problems are confronted by the peoples which strongly proves that the prospects of conversion of cashless are limited.

CONCEPTS AND CONSEQUENCES

The concepts of cashless means minimum utilization of cash. A society where all the transactions are made by electronic gateway. Where debit and credit cards, POS terminal, swipe machine, mobile wallets are used instead of cash. Currency option is getting old in modern revolutionary age.

Upcoming generation find more digital as compared to the past. This paper highlight the technological age which is directly associated with the youth and they find more comfortable themselves with electronic payment system. Convenience, comfort and security are the first priority which forcefully drives the society in order to convert cashless. This paper consist the benefits of modern techno-friendly circumstances which are driven by various digital instruments like debit and credit cards, POS Terminal, smart cards, arrivals of smart phones with 3g-4g network, electronic cash etc. conversion of overall society into cashless is an emerging trend which explore the sustainable financial stability, effective utilization of monetary resources which is helpful for the government in order to development of the whole society, construction of highway's, cannels, dams, infrastructure development, etc. government should also capable to provide better educational and employment facilities. Through cashless system, government collect huge amount by direct and indirect tax which drives the facilities of financial inclusion and improves per capita income. It also helps to reduce inflation rate. GDP and revenues will definitely be upgraded when services and production flows at their proper manner. Defense will be strong and problems of fake currency should reduce.

PROBLEMS AND PROSPECTS

The main aspects of E-Commerce and cashless society is whether the benefits would be greater than drawback, government supposed to highlight the benefits rather than drawbacks when it is important to become cashless society. The main issue is to remove monetary crimes and establishment of financial stability. When there is a need of sustainable development, financial resources should be utilized properly. Cashless circumstances should only be developing by government and it requires proper monitoring because the major drawback of cashless society consist privacy issue and hackers. Peoples every time afraid about financial fraud and uncomfortable as they perceive that their financial data should not be leaked and they perceived that their confidential data should not exposed to government. Another major drawbacks of cashless society is "computer hackers", cyber cell determined some fictitious companies or imaginary financial institutions which resemble like authorized institutions, set up dummy companies, alter record, and many more. However technological advancement means hackers become more successful in making copies of financial data with magnetic strip and digital signature in order to commit fraud (Olalekan S. Akinola, 2012).

All the stakeholders are required to indulge themselves for conversion of cashless society. Financial institutions, intermediaries, corporate agents, nationalized and private banks and government agencies are required to adopt this innovative system of transaction with trust in digital currency. As the economy easily consider cashless system, all banks- large and small- must evaluate their existing technology, remove the chances of error, improves better connectivity, enhance efficiency and transparency. Proper unique identification number and facilities of biometrics should be available to the customer. Convenience and trust are the major drivers which spark innovation and enhance the quality of financial transaction which develop transactional habits through digital currency and improve the trust on E-Commerce.

OBJECTIVES OF THE STUDY

1. To find out the Reliability, durability and future prospects of electronic gateway for payment system.
2. To determine the perception of users regarding electronic and digital transaction system.

HYPOTHESIS OF THE STUDY

H01 There is no significant relationship between electronic gateway and its applicability.

- **H01a** There is no significant relationship between reliability with electronic gateway.
- **H01b** There is no significant relationship between durability with electronic gateway.
- **H01c** There is no significant relationship between future prospects with electronic gateway.

H02 Users never recognized electronic gateway as a faithful source of transaction.

REVIEW OF LITERATURE

Vidya et al, (2015), this research paper enlighten that the digitalization surrounds everywhere in the economy and peoples are supposed to prefer electronic channels in the place of cash and slowly these electronics channels will definitely conquered overall cash dominating scenario and rises the new era of digitalization.

Patil (2014), this research paper explore the facts about the growth of choices of transaction system apart from cash. Due to change in the habits of banking transaction, peoples are supposed to look most convenient, time saving, and secure mode of transaction and electronic gateway provides the platform to ensure all these required criteria which upgraded the facilities which is looking for the peoples from the past long years.

Shah Ahmad Zahoor (2017), this paper tries to focus on the transformation of cash to cashless transaction system. All efforts are made by government and their stakeholders for transforming of cash into cashless and their advantageous includes for the purpose of reveals the facts that electronic or digital transaction system are beneficial for the society as a whole but it is a tough task to convert all the transaction into cashless and sometimes cash would consider better then cashless and India spend a very long years to transform into cashless which is now seems to be impossible.

METHODOLOGY

a. **Population: -** we have decided to study the different approaches apart from cash for transactions especially from tribal areas, hence people visiting retail outlets for purchasing constitutes population for this study.

b. Sampling Design:-

(a) Sampling Design: - As the size of actual population is unknown, thus we have decided to adopt non-probability sampling technique for this research. We are going to consider the three blocks namely Masturi, Bilha, Takhatpur blocks of Bilaspur district as quotas and equal amount of data will be collected from each quota.

(b) Sampling Technique: - To get easy access to the desired amount of responses, we have decided to adopt convenience sampling method for collecting the data.

(c) Sample Size: - A sample of 100 respondents will be considered as sample size for this research. Out of 100, 50 respondents are from retail sectors and 50 respondents are customers.

c. Research Instrument: - Structured questionnaire

d. **Sources of Data: -** Primary data will be collected with the help of structured questionnaire through survey.

Secondary data will be collected from books, online and published journals, research papers etc.

DATA ANALYSIS AND INTERPRETATION

Demographic profile of the respondents

Gender (N=93)	**Frequency**	**Percent**
Male	57	61
Female	36	39
Age (N=93)		
Upto 25 years	20	22
25 to 35 years	45	48
36 to 45 years	28	30
Education (N=93)		
Graduation	27	29
Post-Graduation	40	43
Others	26	28

Profession (N=93)		
Students	28	30
Businessman	36	39
Salaried	29	31
Income (N=93) in lakhs		
Upto 2.50/annum	39	42
2.50 to 5.00/annum	31	33
above 5.00/annum	23	25

To find out the feasibility of electronic gateway for transaction, a likert scale type questionnaire was prepared which includes all parameters which are associated with the user's choice and preferences of transaction. 100 questionnaires were distributed to the respondents, out of 100 questionnaires, 7 were rejected and 93 were accepted for analysis. So far analysis is concerned; MS Excel was used for analysis of data.

Questionnaires	**frequency**	**Percent**
Distributed	100	100
Accepted	93	93
Rejected	7	7

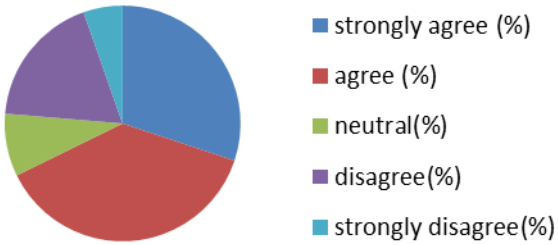
Questions	**total**	**Strongly agree (%)**	**Agree (%)**	**Neutral (%)**	**Disagree (%)**	**Strongly disagree (%)**	**Total (%)**
Question 1	93	30%	38%	9%	18%	5%	100%
Question 2	93	20%	41%	16%	18%	4%	100%
Question 3	93	5%	42%	29%	17%	6%	100%
Question 4	93	4%	45%	33%	15%	2%	100%
Question 5	93	5%	44%	29%	19%	2%	100%
Question 6	93	4%	46%	29%	19%	1%	100%
Question 7	93	4%	42%	31%	20%	2%	100%
Question 8	93	28%	39%	10%	18%	5%	100%
Question 9	93	20%	41%	17%	17%	4%	100%
Question 10	93	4%	47%	30%	16%	2%	100%

Table 2 represents the sample of likert scale questionnaire distributed among the respondents and their summarized data which shows the calculations of frequency analysis through MS Excel. It was found by using all the variables into ten parameters and all these parameters were converted into questionnaires which are distributed among 100 respondents and 93 questionnaires are accepted for frequency analysis and considered as 100%. A simple MS Excel is used to develop these data into the table.

H01a There is no significant relationship between reliability with electronic gateway.

1. Electronic gateway is a reliable source of transaction

Questions	**total**	**Strongly agree (%)**	**Agree (%)**	**Neutral (%)**	**Disagree (%)**	**Strongly disagree (%)**	**Total (%)**
Question 1	93	30%	38%	9%	18%	5%	100%

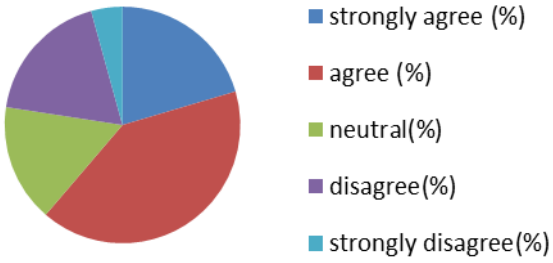


On the basis of above pie chart, hypothesis H01a is rejected and proves that electronic gateway were found the reliable source of transaction.

H01b There is no significant relationship between durability with electronic gateway.

2. Electronic gateway is consider as a durable system as compared to the cash dominant economy

Questions	total	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)	Total (%)
Question 2	93	20%	41%	16%	18%	4%	100%

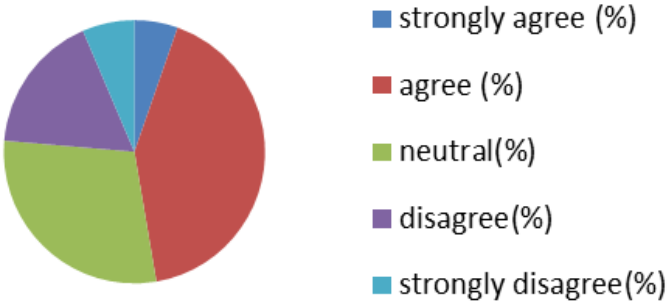


On the basis of above pie chart, hypothesis H01b is rejected and proves that electronic gateway were found durable source of transaction.

H01c There is no significant relationship between future prospects with electronic gateway.

3. Electronic gateway is recognized as a feasible transaction system in near future

Questions	total	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)	Total (%)
Question 3	93	5%	42%	29%	17%	6%	100%

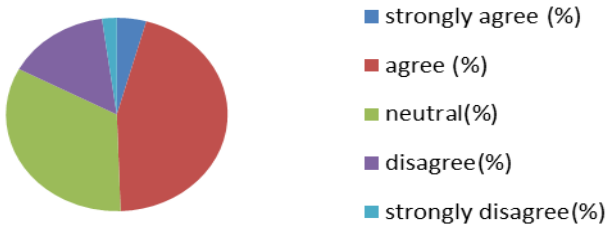


On the basis of above pie chart, hypothesis H01c is rejected and proves that electronic gateway were found feasible source of transaction.

H02 Users never recognized electronic gateway as a faithful source of transaction.

4. The availability of electronic gateway services

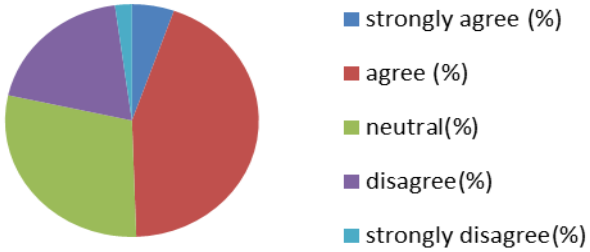
Questions	total	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)	Total (%)
Question 4	93	4%	45%	33%	15%	2%	100%



The above table and pie chart shows that the strong availability of electronic gateway which proves the faithfulness towards transaction system.

5. Electronic gateway services perceived as a convenient mode of transaction.

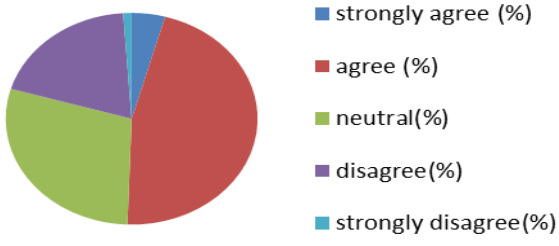
Questions	total	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)	Total (%)
Question 5	93	5%	44%	29%	19%	2%	100%



The above table and pie chart shows that majorities of respondents perceived that electronic gateway is convenient mode for transaction as compared to cash.

6. Satisfied with the security of the electronic gateway services.

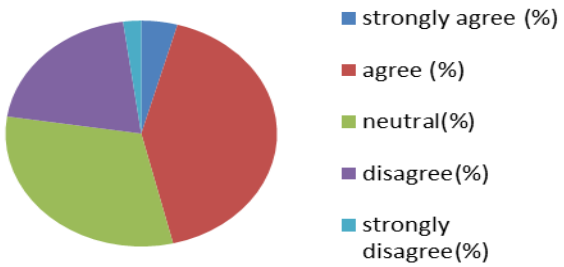
Questions	total	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)	Total (%)
Question 6	93	4%	46%	29%	19%	1%	100%



The above table and pie chart shows that majorities of respondents are satisfied with the security of electronic gateway as compared to cash.

7. Availability/ Acceptance of the services at different stores.

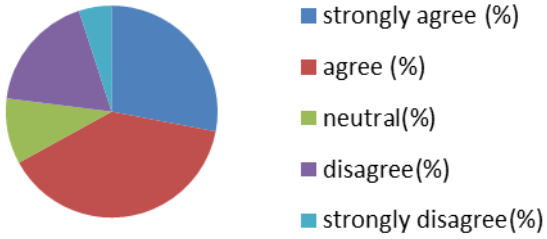
Questions	total	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)	Total (%)
Question 7	93	4%	42%	31%	20%	2%	100%



The above table and pie chart shows that majorities of respondents accepts that even small traders avail the services of electronic gateway to the customers at their stores.

8. To take the advantage of loyalty/ reward points and discounts.

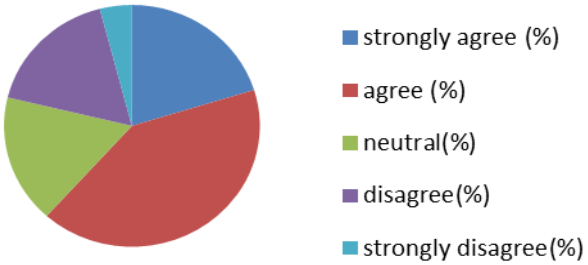
Questions	total	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)	Total (%)
Question 8	93	28%	39%	10%	18%	5%	100%



The above table and pie chart shows that majorities of respondents experienced the reward points and discounts by using electronic gateway.

9. Electronic gateway is used as an alternative mode of payment.

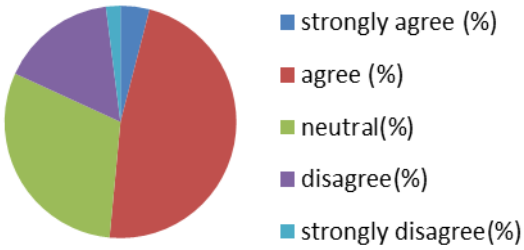
Questions	total	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)	Total (%)
Question 9	93	20%	41%	17%	17%	4%	100%



The above table and pie chart shows that majorities of respondents agreed to adopt again and again electronic gateway as an alternative mode of payment.

10. Electronic gateway substitutes the physical payment system.

Questions	total	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)	Total (%)
Question 10	93	4%	47%	30%	16%	2%	100%



The above table and pie chart shows that majorities of respondent's recognized electronic gateway is a substitute of cash based transaction.

On the basis of above questionnaires and their results, second hypothesis were found rejected and proves that electronic gateway is now recognized as a faithful transaction system.

RESULTS

- On the basis of above analysis, it is found that electronic gateway is a reliable, durable, and feasible transactional method in upcoming days.
- On the basis of frequency analysis, it was found that large numbers of respondents were accepted that electronic gateway services are available.
- While using electronic gateway services at once, majorities accept that these services are more convenient either of using cash.
- Most of the respondents were satisfied with the security of electronic gateway services available in the market.
- Most of the respondents were thought that electronic gateway services as an alternative financial transactional source.
- One of the most important reasons for accepting electronic gateway services are facilities provided like discounts and cash back.
- Electronic gateway services are easy to access anywhere and everywhere, therefore, it becomes the substitute of physical payment.

CONCLUSION

This research paper enlightens the choice and preferences of the users for financial transaction. 21st century witnessed the new and emerging trends for transaction options besides of cash. On the basis of above study it was found that still there are some peoples who perceived that cash as a best method for financial transaction, most of the respondents are frequently convert their payment option into digital transaction system and supposed to use their electronic devices as mobile banking system. It was found that electronic gateway services are easy to access, convenient, and secure mode of transaction which also facilitates the services like cash back, discounts, and rewards. A newly formed state like Chhattisgarh which consider as a tribal state serves a great economic opportunities for marketer, there is a need to maintain digital payment option and infrastructure simultaneously with cash payment. Literacy and lack of proper digital infrastructure are still major issues and challenges of transaction which shows hard to adopt this behaviour and difficult to get complete market share in next few

decades, but still majorities are excited and trying hard to develop their habits to use electronic gateway and demand to avail this services everywhere.

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Annexure

	Strongly Agree	**Agree**	**Neutral**	**Disagree**	**strongly Disagree**
Electronic gateway is a reliable source of transaction					
Electronic gateway is recognized as a feasible transaction system in near future					
Electronic gateway is consider as a durable system as compared to the cash dominant economy					
The availability of electronic gateway services					
Electronic gateway services perceived as a convenient mode of transaction					
Satisfied with the security of the electronic gateway services.					
Availability/ Acceptance of the services at different stores					
To take the advantage of loyalty/ reward points and discounts					
electronic gateway is used as an alternative mode of payment					
electronic gateway substitutes the physical payment system					

Measuring Financial Innovation through Malmquist Index in Indian Banks: Evidencing from Panel Analysis

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Abstract
The study is an attempt to evaluate and analyse the productivity change of Indian Banks. For the examination purpose two banks each from public and private sector banks were undertaken. The period of the study is from 2010-2018. Financial Innovation is explored through Malmquist Index and evidenced through panel data analysis. For observing the productivity change, a non-parametric approach called Input Oriented Malmquist Productivity Index with Data Envelopment Analysis (DEA) has been used. The Total Factor Productivity (TFP) changes were decomposed into the Technical Efficiency Change and Technological Change (TECH & TCH). The technical efficiency change was further decomposed into Pure and Scale Efficiency Change (PTECH &SECH). Further, to examine the effect of FDI and other bank specific and country specific variables panel regression has been used.

During the study it was found that these four banks productivity got progressed by 4.1% per year. The results of panel regression model identified that FDI, GDP and ETA (Equity to Asset Ratio) positively affect the TFPCH and other variables had a negative effect. The long-term asset and inflation significantly affect the TFPCH that signifies the size of operation of banks had significant impact on total factor productivity. The FDI and Other variables did not affect the productivity of the bank. The findings of the study indicates that PNB, ICICI and HDFC Banks were negatively affected and results were statistically significant. But, SBI, which was a benchmark categorical variable had a significant positive TFPCH.

Keywords: Data Envelopment Analysis, Malmquist productivity Index, Total factor Productivity Change (TFPCH), Panel Regression Model.

Introduction

Financial Innovation is primarily a product which emphasizes on cost and risk reduction for banks which ultimately improves the services of the financial industry overall. For improving the service quality of banks there are various factors which affect the efficiency of banks in providing services. [5]To analyse the efficiency of banks a non-parametric technique called Malmquist Productivity index is used out of which Total Factor Productivity Change (TFPCH) is observed. Total Factor productivity change (TFPCH) is further decomposed into Technical Efficiency Change (TECH) and Technology Change (TCH). TECH is further divided into Pure Technical Efficiency Change (PTECH) and Scale Technical Efficiency Change (SECH).

[15]TFPCH helps to know the level of growth in output with reference to output. TECH defines the ratio between the Produced Quantity and Input Factor whereas Technological Change (TCH) defines the optimal combination of Input to produce a given level of output. Pure Technical efficiency change

signifies the extent to which the input can be reduced to remain within the Variable Returns to Scale (VRS) Frontier.

After analysing the TFPCH with the help of Input-Output variables, impact of FDI with Bank Specific and Country Specific controlling variable on TFPCH is analysed. In the study Foreign Direct Investment (FDI) is taken as Independent variable because it is considered as one of the economic factors that affect the productivity of the bank. [1] Foreign Direct Investment is an investment made by one company into another company for the purpose of enlarging the size of the business. FDI plays a very crucial role in the economic development of the country. [2] The competition in host country boost due to FDI inflows which increases the efficiency of local companies through the adoption of modern technologies. [3] The objective behind FDI is to have development from both technological and operational aspects. When the bank receives investment that enables them to expand geographically and parallel to this make them more financially stable. India is a developing country in which FDI flows through three routes viz. Government Route, Automatic route and acquisition of shares. During the pre-liberalization period, India had not achieved the economic progress. Afterwards, India opened up the economy in 1991. [18]Due to FDI, various economic factors got expanded such as transfer of technology, employment generation, managerial expertise and a greater degree of financial stability. In an economy, banking sector plays a very crucial role in the growth of the nation. Commercial Bank's productivity is always influenced by FDI inflow. [19]Foreign direct investment leads to technology transfer and better and improved risk management. [4] The study analysed that because of foreign investment, financial innovation and management practices have been improved. In this research work, these factors are incorporated with FDI inflows that affects the total productivity of the bank.

The purpose of the study is to test the effect of FDI over bank productivity. To analyse this, *Section 2* describes the historical background of the study. *Section 3* includes the two stage analyses in which first part includes the Malmquist- DEA to know the total factor productivity (TFP) growth of banks and second stage analysis include panel data regression analysis to know the impact of FDI inflows on TFP.

Review of Literature

DEA, Malmquist Productivity Index (MPI) has been extensively used to know the efficiency of banks. Various relevant studies conducted in banking sector in which DEA, MPI and relevant techniques were used to determine the efficiency. [9] MPI technique used to know the efficiency of Banks of Serbia and the results shows the decrease in efficiency of Serbian Banks. [10] Another study conducted in which MPI used to know the efficiency of the banks, which conclude that banks didn't use their efficiency at optimal level. For measuring the efficiency of banks' input-output variable is to be taken which we identified from the literature which are as follow:

Input Output Variable: The Input-Output equation signifies the ultimate impact on the productivity of the banks. The previous research paper identifies input-output variables as per *Table I*

Table I: Input-Output Variables for MPI (Explored through previous research work)

Authors	Country	Input	Output
Hope, N. C., Laurenceson, J., & Qin, F. (2008)	China	Deposits	Loans and Non-Interest Income
Karray, S. C., & eddine Chichti, J (2013)	15 Developing Countries	Work, Physical Capital and Borrowed funds	Loans and Other Paying Assets
Marković, M., Knežević, S., Brown, A., & Dmitrović, V. (2015)	Serbia	Assets, the number of Employees and Equity	Revenue and EBT
Fajra Octrina, I. P. (2019)	Indonesia	Personal Expenses, Fixed Assets, Total	Total Loans, Securities and

		Deposits	Investments, Other Income
Abel, S., & Bara, A. (2017)	Zimbabwe	Capital (K), Interest expense (IE) and Non-interest Expenses (NIE)	Total loans (TL) and Non-interest Income (NNI)
Jreisat, A., Hassan, H., & Shankar, S. (2018)	Egypt	Labour, Total Deposits	Total Loans and other Investments
Sathye, M (2002)	Australia	Interest Expenses, and Non-Interest Expenses	Net Interest Income, and Non-Interest Income
Awan, Q. I. D. H. M. (2015)	Pakistan	Labour, Investment, and Equity Capital	Premium
Yadav, R (2015)	Russia	Total Deposits, Total Expense	Loan, Financing, Advance, Net Investments
Kumar, S., & Gulati, R (2008)	India	Physical Capital, Loanable Funds, Labour	Net Interest Income, Non-Interest Income,

After identification of Input output variables, regression model was used to know the effect of explanatory variable on the dependent variable. For this, [6,12,13]second stage regression model has been applied i.e. panel regression as the data is a longitudinal one which means the same data has been measured at different point of time.

Research Methodology

[8]The Malmquist Index (Input oriented) of the Total Factor Productivity Change (TFPCH) between the base period (s) to reference period (t) is estimated as:

$$mpi_0^t(Ys, Xs, Yt, Xt) = \frac{d_0^t(Yt,Xt)}{d_0^t(Ys,Xs)} \quad (1)$$

But if, Base period is 't' and reference period is 's' then,

$$mpi_0^s(Ys, Xs, Yt, Xt) = \frac{d_0^s(Yt,Xt)}{d_0^s(Ys,Xs)} \quad (2)$$

The Malmquist Productivity Index is product of two equation which can be written as:

$$mpi_0(Ys, Xs, Yt, Xt) = \sqrt{\left[\frac{d_0^s(Yt,Xt)}{d_0^s(Ys,Xs)} \; X \; \frac{d_0^t(Yt,Xt)}{d_0^t(Ys,Xs)}\right]} \quad (3)$$

If *mpi > 1, denotes growth in Total Factor Productivity in a positive manner whereas if mpi<1, denotes decrease in TFP growth. Hence the equation can be rewritten as:*

$$mpi_0(Ys, Xs, Yt, Xt) = \frac{d_0^t(Yt,Xt)}{d_0^s(Ys,Xs)} \sqrt{\left[\frac{d_0^s(Yt,Xt)}{d_0^s(Ys,Xs)} \; X \; \frac{d_0^t(Yt,Xt)}{d_0^t(Ys,Xs)}\right]} \quad (4)$$

In equation 4 the proportion outside the square root denotes the technical efficiency part and the square root portion determines the technology change during base to reference period.

[11] Total Factor Productivity change is the product of technical efficiency change and technical change. If revelation is of CRS (Constant Returns to scale) then two forms are there: efficiency and technical change. But if revelation is of VRS (Variable Returns to Scale) then Pure and Scale Technical Efficiency Change are used for showing productivity growth.

Equation 5 shows the Pure technical efficiency change (PTECH)

$$\text{PTECH} = \frac{d^{t}_{0VRS}(Yt,Xt)}{d^{s}_{0VRS}(Ys,Xs)} \quad (5)$$

Equation 6 shows the Scale Efficiency Change (SECH)

$$\text{SECH} = \sqrt{\left[\frac{d^{s}_{0vrs}(Yt,Xt)/d^{s}_{0crs}(Yt,Xt)}{d^{s}_{0vrs}(Ys,Xs)/d^{s}_{0crs}(Yt,Xt)} \; X \; \frac{d^{t}_{0vrs}(Yt,Xt)/d^{t}_{0crs}(Yt,Xt)}{d^{t}_{0vrs}(Ys,Xs)/d^{t}_{0crs}(Yt,Xt)}\right]} \quad (6)$$

Hence, TFPCH= PTECH x SECH x TCH (7)

The Malmquist Productivity Index i.e. TFPCH used as Dependent variable in which FDI, Bank Specific and Country related variable is taken as explanatory variable which is written as:

$$TFPCH_{kt} = a_0 + a_1 FDI_t + a_2 B_{it} + a_3 C_t + u_i \quad (8)$$

Where, TFPCH of bank k at time t is written as a function of FDI inflow at time t; a set of time-dependent bank-level variables, B, and country-specific variables, C; and the random error term u. In the study three dummy variables had been introduced i.e. Banks. to know the TFPCH of Banks.

Data Analysis & Discussion

Stage I Analysis: The Malmquist Productivity index [5]with DEA used to measure the total factor productivity of banks. To measure the productivity, the data of two Private and two Public sector banks of India were taken into consideration for study from 2011-2018. For calculating Malmquist productivity index banks were considered as financial intermediaries. An organisation run through human capital [6] and required equity for smooth functioning and it directly impacts firm productivity that measures through total revenue and earnings before tax. So, the Input Variables were Number of employees (X_1) and Equity (X_2) and Output Variables were Total Revenue (Y_1) and Earnings before Tax (Y_2).

Second Stage Analysis

The impact of FDI over Indian Economy was investigated in this stage. For this, the effect of FDI on TFPCH is taken into consideration. Some control variables are used in the study, which are divided into Bank Specific Variables and Country Specific Variables *(Table II and Table III)*

Table II: Bank Specific Variables

Measurement	Factors	Citation
Size	Logarithm of Total Asset (LTA)	Tanna, S, Jreisat, A., Hassan, H., & Shankar, S
Capital Strength	Equity to Asset Ratio (ETA)	Tanna, S
Profitability	Pre-Tax Profit to Total Asset ratio (PTATAR)	Tanna, S
Effectiveness of Expenses Measurement	Cost to Income Ratio(CTIR)	Tanna, S, Jreisat, A., Hassan, H., & Shankar, S

Table III: Country Specific Variables

Measurement	Factors	Citation
Macro-Economic Environment	GDP, Inflation	Tanna, S
	Regulation in Banking Industry (RBI)	Tanna, S, Sharma, N. K., Pal, S., & Krishna, B. S.

Research Flow Chart

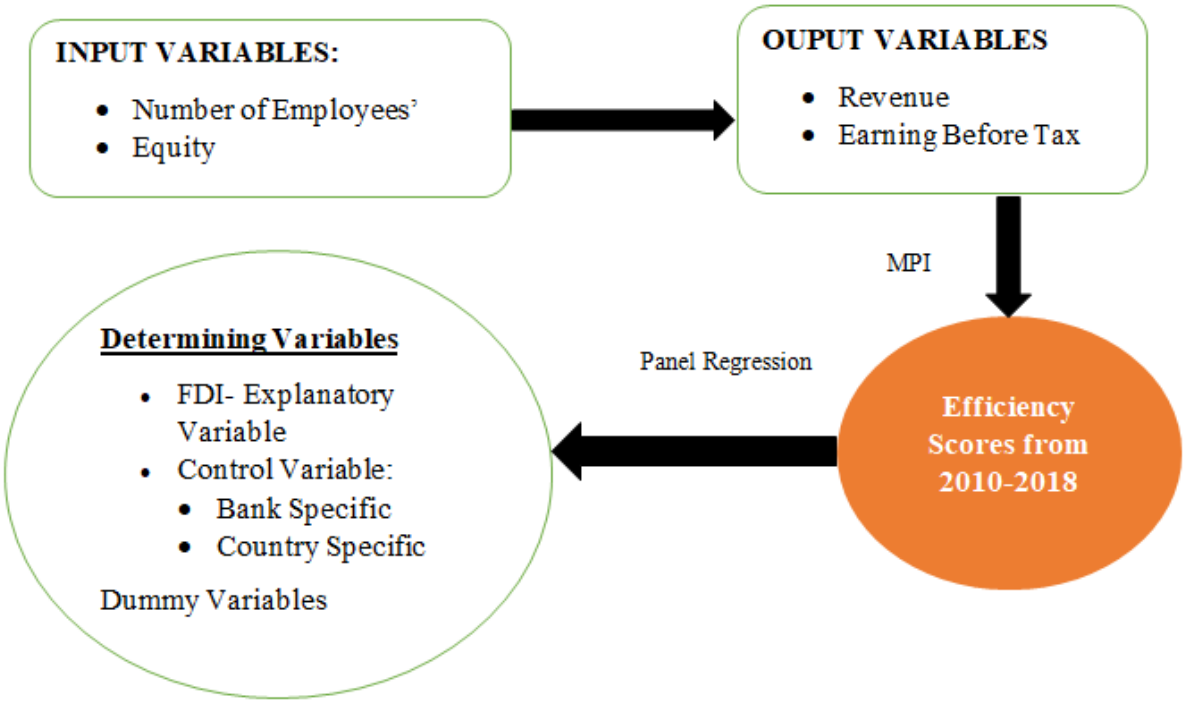

Table IV: Pearson's Correlation Coefficient

	LOGFDI	LTA	ETA	PTATAR	CTIR	GDP	INF	RIBI
LOGFDI	1.000							
LTA	-0.306*	1.000						
ETA	0.966	-0.377*	1.000					
PTATAR	0.428*	-0.408*	0.490*	1.000				
CTIR	0.155*	-0.011*	-0.022*	-0.247*	1.000			
GDP	0.008*	0.018*	-0.002*	-0.340*	0.152*	1.000		
INF	0.014*	-0.430*	-0.005*	0.056*	0.109*	-0.210*	1.000	
RIBI	0.008*	-0.109*	0.000	0.213*	-0.010*	0.124*	0.318*	1.000

Table IV represents Pearson's Coefficient Correlation among the explanatory variables which were taken in the second stage regression analysis. [19] The correlation between the variables are ETA and LogFDI is 0.966 which is too high. This is indicating the multicollinearity among them, which occurs if two variables are highly correlated with each other. This implies that FDI leads to inflow of capital and leads to formation of the assets.

Table V: Malmquist estimates

Year	TEFCH	TCH	PTECH	SECH	TFPCH
2011-2012	1.008	1.061	1.000	1.008	1.070
2012-2013	1.022	1.019	0.997	1.025	1.041
2013-2014	1.035	1.047	1.003	1.032	1.083
2014-2015	0.975	1.100	0.977	0.998	1.073
2015-2016	1.042	0.961	1.023	1.018	1.000
2016-2017	0.932	1.183	1.000	0.932	1.102
2017-2018	1.038	0.896	1.000	1.038	0.930
Mean	**1.007**	**1.035**	**1.000**	**1.007**	**1.041**

Stage 1: Total Factor Productivity (TFP) Results

Total Factor Productivity (TFP) estimates are calculated using intermediation approach. In *Table-V* Total Factor Productivity Change (TFPCH) is further divided into Total Efficiency Change and

Technology Change and then TFPCH further disintegrated into Pure Total Efficiency Change (PTECH) and Scale Efficiency Change (SECH) [7]. The results are from 2010-2018 for each year and a mean value for the period is depicted. The change value is calculated by subtracting succeeding from the previous year and divided by previous year.[24] The mean value for the whole year is calculated by taking geometric mean. [25]Total Factor Productivity>1 whereas negative growth is indicated by a value <1.

Table V shows that on an average banks were progressing in total productivity as mean value of TFPCH is more than 1. The values of technical Changes were increased by .07%, whereas technological changes were increased by 3.5%. In the Calculated *Table V*, technical efficiency got regressed during 2014-15 and technological changes get regressed during 2015-16. When technical efficiency got regressed it means that inputs were not efficiently utilised in comparison to the output. In 2015-16 technological efficiency got regressed that denote an imbalance in input output combination.

Table VI Showing Results of Individual Firm wise of TFPCH.

Firm	TEFCH	TCH	PTECH	SECH	TFPCH
SBI	1.020	1.092	1.000	1.02	1.113
PNB	0.975	1.057	1.000	0.975	1.031
HDFC	1.032	1.008	1.000	1.032	1.041
ICICI	1.000	0.984	1.000	1.000	0.984
Average Efficiency	1.007	1.035	1.000	1.007	1.041

Table VI is showing the Total Factor Productivity Change Firm-Wise. The analysis shows that PNB is struggling with Technical Efficiency regress by 2.5 % that is due to Scale Efficiency Change, which denotes that the bank needs to [22]increase its size of operations in comparison to its output. Technological regress of 1.6 % is observed by ICICI Bank that means [23]Bank need to improve their Input Output combinations and TFPCH is also regressed by 1.6%. Pure Technical Efficiency Change of all the banks are 1.000 which signifies that to remain with [20]Variable Returns to scale (VRS) there is no requirement to decrease the input. The Total Factor Productivity Change of SBI in Comparison to other banks are more i.e. 11.3%.

Stage 2: Regression Results: For analysing the impact of FDI on TFPCH, panel regression is used. The panel data from 2011-2018 persuade in analysing the effect of FDI on TFPCH from both aspects i.e., long term and short-term. For choosing Fixed Effect Model or Random Effect Based Model, Hausman Test of Correlation is used. The chosen model for the study is Fixed Effect. The second stage regressions is shown in *Table VII & VIII.*

Table VII Regression Output

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.845	.714	.517	.059148

The R-Square value in *Table VII* determines the significant impact of FDI on TFPCH (Input Variables-No. of Employees, Equity & Output Variables-Revenue and Earnings Before Tax). The Adjusted R-Square value is .517 which states that one unit change in FDI will lead to .517 times change in TFPCH. This shows that there is a significant impact of FDI on TFPCH.

Table VIII Effect of FDI on Total Productivity

Variables	Coefficients	t-value	Significance
(Constant)	7.853	4.132***	.001
LOGFDI	.164	1.224	.239
LTA	-.389	-3.748***	.002
ETA	2.740	.937	.363
PTATR	-7.372	-1.502	.153
CTIR	-1.546	-1.332	.201
GDP	.577	.214	.833

INF	-.027	-2.313**	.034
RIBI	-.019	-1.086	.294
PNB	-.489	-4.162***	.001
HDFC	-.780	-3.148***	.006
ICICI	-1.083	-2.990***	.009

Sources: Authors Calculation

Not: *In the calculated table t-ratio significance has been judged at 90 per cent ***, significant at 95 per cent **, significant at 99 percent**

The LTA, PTATR, CTIR, INF, RIBI had significant negative impact on TFPCH. Whereas, FDI, GDP and ETA shown positive impact on TFPCH. Variables like LTA, INF, were having significant impact on TFPCH at 90 per cent significance level. In Second Stage Regression analysis the dummy variables were Banks such as PNB, ICICI, HDFC. SBI was categorized as benchmark bank. The t-values were observed significantly which states that the mean difference between SBI and other banks are statistically significant.

[21]FDI is always welcomed by any country and in banks it is very prominent for inclusive growth of banking sector. It leads to financial innovation. The findings state that SBI, PNB, HDFC were improved both in technical and technological aspects. Parallel to this, ICICI needs to maintain sufficient optimum balance between input and output variables so that technologically it can also be progressed in the times to come.

Conclusion

The study has explored the relationship between FDI and TFPCH in the selected public and private sector banks of India from 2011-18. The research piece of work has analysed the aggregate impact of FDI on bank efficiency as FDI is acting as a tool to change the productivity by channelizing the technology which has a positive impact on the bank performance. [26]The positive impact of FDI on TFP shows the absorption capacity of banks in terms of technology which means the banks in our study having a larger technology gaps which can be covered through FDI. The result of regression analysis is focusing towards the financial innovation and development by incorporating variables like inflation, GDP and regulation in the banking industry which conduits technology transfer through FDI. The study is having positive impact of FDI on TFPCH of banks but the existing Literature[6] signifies the negative impact of FDI on TFPCH of banks. In future the other control variables can also include to know the impact of FDI on Total Factor Productivity.

Limitations & Further Scope of Study

The sample was limited to two public and private sector banks, which can be extended to more banks which are the indicators of banking sector in India. Moreover, the time frame of the study can be stretched to better understand the fundamentals for measuring the financial innovation with the help of performance of the banking sector.

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GUERRILLA TACTICS: A FRUGAL INNOVATION IN MARKETING

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ABSTRACT
This research aims at establishing Guerrilla marketing techniques as frugal innovation methods in the field of marketing. A field study for assessing the impact of guerrilla marketing over buying behavior of the customers were conducted taking Chhattisgarh as study area and cell phone as product category. A sample of 500 respondents were selected among the people visiting retails shops for purchasing cell phone using quota and convenience sampling technique and data is collected through structured questionnaire by conducting face to face interviews with the customers. The result shows seven factors of guerrilla marketing as the most influential one and positive impact of these factors of guerrilla marketing over buying behavior of customers. This is concluded that customers has excepted the untraditional methods of promotion as they are more creative and innovative and consumers were get bored from the old methods of promotion. As guerrilla marketing techniques are low cost and low budget promotional techniques, it allows the marketers to cut down their promotional cost which will be reflected in the prices and gives price based competitive advantages to the firms. These methods of low cost or lowering down or cutting the costs from the process is termed in the literature as 'Frugal Innovation'.

Keywords: Guerrilla Tactics, Innovation, Ambient, WoM, Ambush, Buying Behaviour

1. INTRODUCTION
Till now it is believed that developed countries like USA or Japan are the places from where the innovations get originated (McCloskey 2010). Several companies and professionals from various developing countries were emerging with frugal innovations (Rosca et al., 2017). FIs tend to emphasize sustainability more than the mainstream innovations (Levanen et al., 2016). Hossain et al. (2016) define "*frugal innovation as a resource scarce solution (i.e., product, service, process, or business model) that is designed and implemented despite financial, technological, material or other resource constraints, whereby the final outcome is significantly cheaper than competitive offerings (if available) and is good enough to meet the basic needs of customers who would otherwise remain un(der)served*." There are numerous types of FIs in practice. Some prominent examples of FIs include cars, medical devices, health services, solar energy, refrigerators, and water purifiers (Hossain, 2017).

The academic knowledge on FI is sparse (Simula et al., 2015). Frugal innovation offerings are generally good enough to fulfil the needs of local consumers in developing countries, yet they are significantly less expensive than alternative offerings (Rao, 2013). Even though such innovations are primarily aimed at low-income customers in developing countries, some of them trickle up to developed countries (Zedtwitz et al., 2015). Scholars argue that FIs aim to disrupt existing innovation paradigms with significant cost reductions on the one hand and maintain customer value on the other (Knorringa et al., 2016). The characteristics of FIs are different to those of mainstream innovations, so they need to be understood from novel perspectives. FIs therefore need different theories for several key reasons, such as (1) the geographical context is different (Rao, 2013); (2) the diffusion pattern is different (Hossain et al., 2016); (3) they need a different business model (Zeschky et al., 2011); and (4) they need a different distribution channel (Simula et al., 2015). Some scholars argue that FIs provide opportunities for firms to mitigate poverty, while others regard FIs as nothing more than a new way for capitalists to exploit underprivileged customers (Knorringa et al., 2016). FI has become a central innovation topic that is predominantly focused on developing countries. A significant number of studies into FI have emerged in recent years, and the FI concept overlaps with many other concepts (Agarwal et al., 2017). The research stream into frugal innovation has also proceeded in a number of paths, and the diffusion of the frugal innovation concept through the academic literature and practices

has emerged in an unorganized and convoluted fashion. Several review papers on frugal innovation literature and related topics have provided some insights through distinct lenses (Agarwal et al., 2017).

These studies have certainly enriched our understanding on FIs, yet there are still numerous issues to explore to enhance our knowledge further. Apart from product or services, frugal innovation has become popular in the functional areas of business where cost cutting through different process is emphasized. Our study takes such one different approach. It aims to establish Guerrilla marketing tactics as a way of frugal innovation in the promotion process through which the overall cost of the promotion can be lowered down for attaining the least possible price of the product, keeping same standard of quality, to remain competitive in the market.

2. FRUGAL INNOVATION

The origin of the frugal innovation concept is not clearly known. Moreover, no study in the frugal innovation literature emphatically mentioned the origin of the concept. The earliest journal paper on frugal innovation appeared on the Web of Science database was contributed by Zeschky et al. (2011). In popular press, the concept was introduced in 2010 by The Economist (economist.com/node/15879359). However, the frugal innovation concept stems from the "frugal engineering" concept coined in 2006 by Carlos Ghosn, the Chairman and CEO of the Renault-Nissan Alliance. Frugal innovation is defined in many ways (Hossain et al., 2016).

Pisoni et al. (2017) found that the definition of frugal innovation has evolved based on three broad ways: product-oriented definition in 2012-2013, market-oriented definition in 2014-2015, and criteria-oriented definition in 2016-2017. Gupta (2011) considers FI as a new management philosophy that integrates the needs at the base of the pyramid (BoP) as a starting point to develop solutions that differ greatly from the established solutions, as cited in Brem and Wolfram (2014). FIs result in products that are low cost but good enough, and the business models for FIs originate in, and for, developing countries (George et al., 2012). Malik and Aggarwal (2012) argue that FI is an EMNC's capability to imitate, design, and manufacture products and services using existing technologies while exploiting small-scale and flexible operations, readily accessible raw materials, and other local resources. Rosca et al. (2017) argue to define frugal innovation based on the following criteria: (1) the level of manufacturing versus the state in the respective economic area, (2) location of the main processes and part of innovation development, and (3) the direction of innovation.

So far, frugal innovations were used as synonyms with frugal engineering where focus was given in producing low cost product or services, specially for poor section and lower income group of the society. Recently, an advancement has been observed in the concept and nowadays many companies has started implementing the concept in the organizational processes and functions as well. The most popular area is Supply Chain of the organization followed by marketing and HR of the organization. The focus is to innovate in the overall process for reducing the cost. One such technique which can be viewed as frugal innovation in marketing and promotion is "Guerrilla Tactics".

3. GUERRILLA MARKETING

The term "guerrilla marketing" describes unconventional marketing campaigns and/or strategies which should have a significant promotional effect – this at a fraction of the budget that "traditional" marketing campaigns would spend for the same goal. The American, Jay Conrad Levinson coined the term Guerrilla marketing in the 1980s, meaning unconventional marketing that uses campaigns and/or strategies to make a significant promotional effect.

Guerrilla marketing is an approach, and as its name reveled one could easily understand it as a controversial form of marketing, since the name is adopted from the warfare tactics of military. The term guerilla marketing has its roots from the concept guerilla warfare and describes a group that uses a violent approach to achieve the implementation of their beliefs and ideology. The combat operation was used by small groups that stood against large armies. (Fahrenholz et al, 2008).This is a strategy where one could take a win on his competitor with a much planned manner in a smaller scale. Companies use warfare to fight on the battleground of today, the consumer's mind – where words and pictures are the weapons used and where the CEO of every company acts as a general (Garsombke,

1987). Guerrilla marketing is a special type of marketing strategy which is nowadays designed for marketing mix model and mainly used in 'P' (promotion) element. Levinson (2006) says that when one company uses this form of marketing, he is actually trying to weaken his rivalries using unconventional methods and stay profitable in the market even with the very limited resources. According to Levinson, guerrilla marketing is: "*A body of unconventional ways of pursuing conventional goals. It is a proven method of achieving profits with minimum money*" (gmarketing.com, 2009). These promotional techniques lies on time, energy, individual attention, and creativity rather than big marketing budgets. The entire concepts works on the surprise effect and the goal is to create a memorable experience and 'wow' factor for the customer.

The attitude of a guerrilla marketer is dramatically different from that of a non-guerrilla marketer, which is why customers feel the difference (Levinson, 1999). Successful businesses stand out the competition by showing their attitude to consumers. However, attitude alone may not bring success to the business, but it certainly sets the business apart from the competitors. It is important that the attitude of the business should be unique and consist to its competitive advantage. In addition, the consistency of attitude should be in every marketing detail, from splendid national TV commercials to every piece of direct mail. Levinson (1999) points out that the attitude of business must come shining through in all marketing materials. It needs to come across by what the marketers say, how they say it, where they say it and how frequently they say it. Guerrilla marketers have the insight that to master guerrilla marketing is to take action. The first step to take action is to separate the illusion from reality by applying the business knowledge. A master guerrilla marketer should be the master of the market situation. The marketers should have answers to the following questions:

1. What are the core competencies and the core value?
2. Who are the competitors and what are their core competencies and core value?
3. Who are the partners?
4. What is the short-term goal and long-term goal?

With the answers, the marketers start the marketing by putting the goals in the planning, choosing weapons to execute the plan, and importing the attitude in every marketing act. Action also means immediately move. Levinson (1999) mentioned that "If there's a correct time to start, it's right now. If there's a proper place, it's right where you are. You'll never feel that you are completely ready, so you may as well begin right now" The other best quality of guerrilla marketing masters is that they are not afraid of failures. They rather take failures than wasting time in making action.

3.1. KEY PRINCIPLES OF GUERRILLA MARKETING

There are a number of key principles that characterize guerrilla marketing. These can be remembered by the acronym NEAPS.

- ***Networks*** - businesses should constantly look to make contacts and build relationships.
- ***Energy*** - remember that every contact and every day is an opportunity to market your company. This is called 360 degree marketing.
- ***Activity*** - be aware that there are always opportunities to make your product known and find ways of doing this when the opportunity arises.
- ***Presence*** - find ways to make your business known to the market. This could be through chat rooms, email, forums, discussion boards, radio, magazine, street posters, and graffiti and so on.
- ***Smart*** - make sure that you do not offend customers. (Some businesses have in fact turned this rule on its head by deliberately offending people they know are unlikely to be customers and they then use the controversy to create awareness in their target audience.) (Sharma, 2015)

Different studies on guerrilla marketing has leads to various factors such as clarity, emotion arousal, creativity, humour and surprising which influences the buying behavaiour of the consumers (Costa, 2014; Tam and Khuong (2015) but influence of these factors depends on the acceptance of these ads

by the target customers which is subjected to the cultural setting and demography of the people (Nawaz et al, 2014).

3.2. GUERRILLA MARKETING WEAPONS

The wave of new technology products hitting the shelves makes for an exciting and somewhat confusing situation for guerrillas. There are so many new tools to enhance your productivity, yet only a handful of these are easy enough for every level technology user. The ones that can really assist guerrillas the most are the tools that allow us to be more organized and maximize our time (McQuerry, 2011; Nair, 2011). There are about 200 weapons listed by Levinson in his book. Table 1 gives a clear idea of various tools and techniques of guerrilla marketing widely used by the marketers.

Table 1: List of Guerrilla Marketing Weapons (gmarketing.com)

1	Marketing plan	51	A landing page	101	Your employees and reps	151	Marketing-on-hold
2	A marketing calendar	52	A merchant account	102	A designated guerrilla	152	Branded entertainment
3	Identity	53	A shopping cart	103	Employee attire	153	Product placement
4	Business cards	54	Auto-responders	104	Your social demeanor	154	Being a radio talk show guest
5	Stationery	55	A search engine ranking	105	Your target audience	155	Being a TV talk show guest
6	Personal letters	56	Electronic brochures	106	Your circle of influence	156	Subliminal marketing
7	Telephone marketing	57	RSS feeds	107	Your contact time with customers	157	A proper view of marketing
8	A toll-free number	58	Blogs	108	How you say "Hello" and "Goodbye"	158	Brand name awareness
9	A vanity phone number	59	Podcasting	109	Your teaching ability	159	Intelligent positioning
10	The Yellow Pages	60	A personal e-zine	110	Stories	160	A name
11	Postcards	61	Ads in other e-zines	111	Sales training	161	A meme
12	Postcard decks	62	E-Books	112	Use of downtime	162	A theme line
13	Classified ads	63	Content provision	113	Networking	163	Writing ability
14	Per-order and per-inquiry advertising	64	Webinars	114	Professional titles	164	Copywriting ability
15	Free ads in shoppers	65	Joint ventures	115	Affiliate marketing	165	Headline copy talent
16	Circulars and flies	66	Word-of-mouse	116	Media contacts	166	Location
17	Community bulletin boards	67	Viral marketing	117	"A"-List customers	167	Hours of operation
18	Movie ads	68	eBay and other auction sites	118	Your core story	168	Days of operation
19	Outside signs	69	Click analyzers	119	A sense of urgency	169	Credit card acceptance
20	Street banners	70	Pay-per-click ads	120	Limited time or quantity offers	170	Financing availability
21	A window display	71	Search engine keywords	121	A call to action	171	Credibility
22	Inside signs	72	Google adwords	122	Satisfied customers	172	Reputation
23	Posters	73	Sponsored	123	A benefits list	173	Efficiency

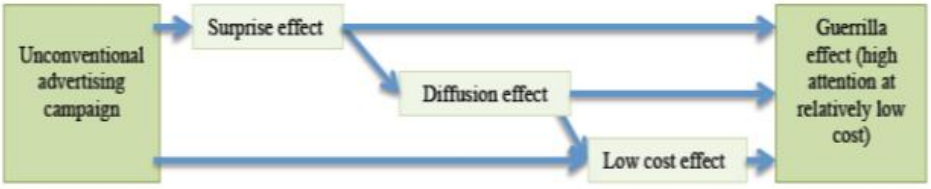
			links				
24	Canvassing	74	Reciprocal link exchanges	124	Competitive advantages	174	Quality
25	Door hangers	75	Banner exchanges	125	Gifts	175	Service
26	An elevator pitch	76	Web conversion rates	126	Service	176	Selection
27	A value story	77	Knowledge of your market	127	Public relations	177	Price
28	Backend sales	78	Research studies	128	Fusion marketing	178	Upgrade opportunities
29	Letters of recommendation	79	Specific customer data	129	Barter	179	Referral program
30	Attendance at trade shows	80	Case studies	130	Word-of-mouth	180	Spying
31	Advertising	81	Sharing	131	Buzz	181	Testimonials
32	Direct mail	82	Brochures	132	Community involvement	182	Extra value
33	Newspaper ads	83	Catalogs	133	Club and association memberships	183	Adopting a noble cause
34	Radio spots	84	Business directories	134	Free directory listings	184	Easy to do business with
35	Magazine ads	85	Public service announcements	135	A tradeshow booth	185	Honest interest in people
36	Billboards	86	A newsletter	136	Special events	186	Good telephone demeanor
37	Television commercials	87	Speeches	137	A name tag at events	187	Passion and enthusiasm
38	A computer	88	Free consultations	138	Luxury box at events	188	Sensitivity
39	A printer or fax machine	89	Free demonstrations	139	Gift certificates	189	Patience
40	Chat rooms	90	Free seminars	140	Audio-visual aids	190	Flexibility
41	Forums	91	Articles	141	Flip charts	191	Generosity
42	Internet bulletin boards	92	Columns	142	Reprints and blowups	192	Self-confidence
43	List building	93	Writing books	143	Coupons	193	Neatness
44	Personalized e-mail	94	Publishing-on-demand	144	A free trail offer	194	Aggressiveness
45	An e-mail signature	95	Workshops	145	Guarantees	195	Competitiveness
46	Canned e-mail	96	Teleseminars	146	Contests and sweepstakes	196	High energy
47	Bulk e-mail	97	Infomercials	147	Baking or crafts ability	197	Speed
48	Audio and video postcards	98	Constant learning	148	Lead buying	198	Focus
49	A domain name	99	Marketing insight	149	Follow-up	199	Attention to details
50	A web site	100	Yourself	150	A tracking plan	200	Ability to take action

3.3. EFFECTS OF GUERRILLA MARKETING

There are both positive and negative effects of guerrilla marketing, which are important to have in mind when considering using this marketing technique.

Positive effects

The effect of guerrilla marketing is divided into three effects; these are the surprise effect, diffusion effect and low cost effect. These effects lead to the guerrilla effect. Figure below shows how unconventional advertising campaigns create guerrilla effect. A guerrilla effect is when unconventional advertising creates a high level of attention at a relatively low cost. Low cost does not necessarily mean that the advertisement has to be cheap. The advertisement can cost a lot of money, but at the same time capture the interests of thousands of people. In the end, when the cost is divided between all these people, the cost per person that was reached is low (Hutter & Hoffmann, 2011).



(Based on: Hutter & Hoffman, *The basic guerrilla effect*. p. 4, 2011)

- ***Surprise effect***: To get the surprise effect, companies use ambient or sensation marketing. These kinds of guerrilla marketing instruments are placed in unusual locations and they are a type of classical outdoor marketing, for example, fly posting stickers and graffiti proofs. Ambient marketing is seen as a very fast-growing market sector and due to the low cost, a company can reach a wide target group.
- ***Diffusion effect***: The second instrument is the diffusion effect, which is a way to increase the number of individuals exposed to the advertising without increasing the costs of campaigns. Guerrilla marketing triggers surprise, which means, if a recipient is very surprised, he or she is very happy to tell friends and family about the experience. This starts the diffusion effect, or in other words WoM. The instruments that try to stimulate the diffusion effect are viral marketing, buzz marketing and guerrilla PR (Hutter & Hoffmann, 2011).
- ***Low cost effect***: The last instrument is the low-cost effect. The instrument that is keeping the marketing budget on a low level is ambush marketing. Ambush marketing is when a company or a brand is visible at events, for example, sporting events, but does not pay for it.

Negative effects

In some cases the marketers do not consider the negative side effects that can occur while using guerrilla marketing and this may lead to ethical problems. Using guerrilla marketing draws a lot of attention, and it is often created to affect the emotions of the consumers. Therefore, emotions in guerrilla marketing campaigns are important. The marketers have three purposes to arouse emotions, according to Ay, Aytekin and Nardali (2010): *The first purpose is that using emotions is an important benefit derived from a product or brand. The second purpose is that the emotions may help to communicate the benefits of a product or a brand. And the third purpose is that emotions can directly affect attitudes.*

There are different factors that can create irritation, which in turn can lead to negative attitudes towards the brand, as well as ethical problems. The negative effect, which can arise, is irritation caused by fear appeal; this can lead to unwanted reactions from consumers. Some guerrilla marketing which uses fear appeal in campaigns can make the consumers feel angry, disturbed, fearful or sad. This kind of marketing campaigns can create emotions that are worse than dislike towards the brand. Besides the irritation that can occur, there is some danger in using guerrilla marketing. An example is when campaign ads were placed in the middle of the road. This distracted the drivers, and could cause traffic accidents (Ay et al. 2010). This part of the paper described the negative effects of guerrilla marketing, and it is very important for the marketers to plan the campaign carefully to prevent any negative effects. Next part describes what to have in mind when designing the marketing message. Moreover, a presentation of the message design determinants, studied in this thesis, will be provided.

4. PURPOSE OF THE STUDY

In its simplest form, Frugal innovations are the cost cutting and reducing techniques whereas guerrilla marketing is already proven and establish as a low-cost promotional method which gives maximum output and works on creativity of the marketers. It is a very popular technique in the western countries but its acceptability by consumers in Indian scenario is a question mark among the marketers. This study is conducted for assessing the impact of guerrilla tactics on buying behavior of the consumer in Indian cultural context where Chhattisgarh is considered as study area. The idea is to know the perception and attitude of consumer towards such unconventional methods and assessing its influence on the buying behavior so as to come up with the conclusion regarding acceptance of such methods by the consumers. This will motivates the marketers to use these low cost marketing or promotional techniques in place of such costly advertisements.

5. METHODOLOGY USED

This study is conducted to assess the influence of guerrilla marketing on buying behavior of the consumer in Indian cultural context where Chhattisgarh is considered as study area and cell phones as the product for whom buying behavior of the consumers is studied. Researcher has decided to collect a sample of 500 respondents for this study. Govt. of C.G has divided the state into five divisions i.e. Raipur division, Bilaspur division, Durg division, Bastar division and Sarguja division. These five divisions were considered as five quotas from where a sample of 100 respondents from each quota is selected using convenience sampling technique to get the desired amount of sample for this study. People who went to retail stores for purchasing a cell phone were targeted as sample respondents for collecting the data. A self-administered questionnaire was used and respondents were shown some ads of guerrilla marketing prior collecting the responses through questionnaire. The researcher has explained the basic concept about the unusual advertisement techniques in a very simple and general language for better understanding. The questionnaire was got filled inside the retail shops to ensure the relaxed atmosphere and better recall of ads.

6. RESULTS AND DISCUSSION

Table 2 reflects the demographic profile of the respondents. The results of descriptive analysis for demographic information indicated that among the analyzed samples (n = 500). From the given table it can be explained that about 48 % of the respondents are in the age group of 25-30 years whereas 32% are in the age group of up to 25 years. The sample is skewed towards male population at about 77% indicating the greater adoption of cell phones by male diaspora. From an income distribution perspective it can be seen that about 65% of the sample has a monthly income of less than 50,000 rupees, whereas only 11.6% has an income in excess of Rs. 75,000/-. The sample has also the largest chunk of respondents as post graduates at about 68% with high school and +2 segments accounting for only 8.6% of the respondents. Overall the sample for study is a fair representation of the population since the survey was conducted mainly in urban cities of Chhattisgarh state.

Table 2: Respondent Demographics (n = 500)

Demographic		Frequency	%
Gender			
	Male	384	76.8
	Female	116	23.2
Age			
	Upto 20	39	7.8
	21-25	123	24.6
	26-30	239	47.8
	31-35	58	11.6
	Above 35	41	8.2
Education			
	Upto High School	15	3
	Higher Secondary	28	5.6
	Graduate	115	23

	Post Graduate & Above	342	68.4
Income			
	Upto 25,000	80	16
	25001-50,000	253	48.6
	50001-75,000	119	23.8
	Above 75,000	58	11.6

While analyzing the phone buying behavior, it can be noted that smart phones are the most preferred ones at 88% followed by Querty at 7.8%. This sample characteristic can be related with average spend on new cell phone purchase which has about 40% of respondents in the Rs. 10,000 – 15,000/- range and about 35% in the Rs. 15,000 – 20,000 range. Even the proportion of respondents in more than Rs. 20,000/- range is no less (at 15.2%). The behavior of changing cell phones is also dominant with about 73% changing their phones within a year and more significantly about 42% changing within 6 months. Hence since the frequency of repeat purchase of cell phones is high followed with high spend each time the phone is bought with a greater chunk of young to middle age population forming this segment, the study becomes interesting. The need to analyze the impact of guerrilla marketing techniques influencing cell phone buying behavior becomes relevant and has been analyzed in detail subsequently.

Table 3: General purchase information (n = 500)

Purchase Information		**Frequency**	**%**
Type of Phone			
	Simple	13	2.6
	Touch	8	1.6
	Smart	440	88
	Querty	39	7.8
Amount Spend			
	< 10,000	47	9.4
	10,000 - 15,000	200	40.0
	16,000 - 20,000	177	35.4
	> 20, 000	76	15.2
Frequency of Purchase			
	< 3 Months	59	11.8
	3 - 6 Months	150	30.00
	6 - 1 Year	155	31.00
	> 1 Year	136	27.2

Since this research has utilized proper likert - type scale it is important to test the internal consistency and the reliability of the questionnaire and thus employ a Cronbach's alpha test. A total of 20 scale constructs were tested for reliability and the below table clearly shows that the set of constructs used in this study is perfect and highly reliable. The following table of Reliability Statistics informs us about the value of the coefficient of Cronbach for the research scale is 0.772 = 77.2%. This gets over the percent of 70%, which is a good value for the internal consequence of the conceptual construction of the investigated scale (Anastasiadou, 2010; Nouris, 2006).

Table 4: Reliability Statistics

Reliability Statistics

Cronbach's Alpha	N of Items
.772	20

Table 5: KMO & Bartlett's Test

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.857
Bartlett's Test of Sphericity	Approx. Chi-Square	4729.936
	df	435
	Sig.	.000

From the Table 4 we found that the value for KMO was more than 0.6, and it is 0.857 also Bartlett's Test of Sphericity has sig value less than 0.05 at 5% level of significance. So factor analysis could be conducted successfully for data reduction.

Table 6: Total Variance Explained (Factor Analysis)

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.708	23.542	23.542	4.708	23.542	23.542	3.027	15.137	15.137
2	1.942	9.708	33.250	1.942	9.708	33.250	2.756	13.779	28.917
3	1.553	7.766	41.016	1.553	7.766	41.016	1.900	9.498	38.415
4	1.482	7.409	48.424	1.482	7.409	48.424	1.750	8.752	47.167
5	1.278	6.392	54.816	1.278	6.392	54.816	1.445	7.225	54.392
6	1.174	5.872	60.688	1.174	5.872	60.688	1.219	6.093	60.484
7	1.055	5.274	65.962	1.055	5.274	65.962	1.096	5.478	65.962
8	.951	4.756	70.718						
9	.897	4.485	75.203						
10	.887	4.435	79.639						
11	.839	4.197	83.836						
12	.760	3.799	87.635						
13	.690	3.452	91.087						
14	.566	2.828	93.915						
15	.531	2.655	96.570						
16	.322	1.611	98.181						
17	.193	.965	99.147						
18	.171	.853	100.000						
19	-1.002E-013	-1.008E-013	100.000						
20	-1.006E-013	-1.029E-013	100.000						

Extraction Method: Principal Component Analysis.

Exploratory Factor Analysis is performed on all the 20 dimensions of guerrilla marketing by using principal-component method and Varimax rotation. After removing all the cross loadings it is found from the rotation sums of squared loadings and that twenty variables has been grouped into seven components which have Eigen value of more than 1. It ranges from component no. 1 to component no. 7 with the cumulative percentage from 28.917 percent to 65.962 percent. The percentage of variance ranges from 15.137 percentage to 5.478 percentage.

On the basis of Table 6 we found seven components, for our 20 variables. Based on the item loading, these factors were respectively labeled as:

1. The factor **"Eye-catching"** comprises of 6 variables explains the 1st component
2. The factor ***Surprising"*** comprises of 3 variables explains the 2nd component
3. The factor ***"Clarity"*** comprises of 3 variables explains the 3rd component
4. The factor ***"Humor"*** comprises of 2 variables explains the 4th component
5. The factor ***"Memorable"*** comprises of 2 variables explains the 5th component
6. The factor ***"Novelty"*** comprises of 2 variables explains the 6th component
7. The factor ***"Relevance"*** comprises of 2 variables explains the 7th component

These emerged seven factors were considered as most influential factors of guerrilla marketing considered by the customers of cell phones.

Table 7: Rotated Component Matrix (Factor Analysis)

Rotated Component Matrix[a]

	Component						
	1	2	3	4	5	6	7
G1	.913						
G2	.551						
G3	.498						
G4	.516						
G5	.367						
G6	.913						
G7		.960					
G8		.810					
G9		.960					
G10			.896				
G11			.881				
G12			.300				
G13				.897			
G14				.911			
G15					.825		
G16					.800		
G17						.782	
G18						.722	
G19							.556
G20							.741

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

Table 8: Predicting Purchase Intention and Brand Image

Dependent	Independent	b-value	Beta	t-value	Sig.
Purchase Intention	Eye-catching	3.638	.606	27.420	.000
	Surprising	2.194	.366	16.538	.000
	Clarity	2.417	.403	18.218	.000
	Humor	1.671	.279	12.598	.000
	Memorable	-.083	-.014	-.629	.530*
	Novelty	.721	.120	5.431	.000
	Relevance	-.338	-.056	-2.546	.011
R2 = 0.779, F = 221.768, p<0.05 (at 0.000)					
Brand Image	Eye-catching	.365	.480	15.248	.000
	Surprising	.274	.360	11.433	.000
	Clarity	.275	.361	11.463	.000
	Humor	.070	.092	2.939	.003
	Memorable	.079	.103	3.277	.001
	Novelty	-.018	-.023	-.737	.462*
	Relevance	.049	.064	2.046	.041
R2 = 0.513, F = 74.105, p<0.05 (at 0.000)					

Multiple regression analysis was carried out to assess the impact of various emerged factors of Guerrilla marketing on cell phone buying behaviour of consumers. Buying behaviour in this study is measured in terms of Purchase Intention and Brand Image. In identifying those significant variables accounting for purchase intention of customers, it is revealed that six out of seven emerged factors has a significant impact on purchase intention of the customers. The adjusted R2 of this model is 0.759,

which indicates that these factors create 75.9% of the variation in the cell phone purchase intention of the customers. Highest variation in purchase intention was created by Eye-catching (at 36.8%) and lowest by Novelty (at 2%). The significant F-ratio (F = 221.768, p = 0.000) indicates that the results of the regression model could hardly have occurred by chance. Thus, the goodness-of-fit of the model is satisfactory. One factors i.e. "Memorable" does not shows significant relationship with purchase intention and rest 6 factors significantly and positively influences purchase intention of the customers. Based on the beta coefficient of each independent variable, it is possible to assess the impact of each variable on the dependent variable, i.e, Purchase Intention. According to Table 7, the factor "Eye-catching" was the most important determinant of cell phone purchase intention; it had the highest standardized coefficient value, 0.606, as well as highest t-value, 27.420, followed by Clarity with standardized coefficient value, 0.4039, and t-value, 18.218.

Separate regression analysis was conducted to investigate the influence of the emerged factors on perceived brand image by the customers. Table 7 provides the results of the regression analysis with brand image as the dependent variable. It was noted that six out of seven emerged factors has significant influence on perceived brand image of the customers. The adjusted R2 of this model is 0.513 which indicates that these different dimensions or factors influence the perception of customers with respect to the brand image by 51.3%. Highest variation in brand image was created by Eye-catching (at 23%) and lowest by Humor (at 1.2%). The significant F-ratio (F = 74.105, p = 0.000) indicates that the results of the regression model could hardly have occurred by chance. According to Table 7, the variable "Eye-catching" was the most important determinant of Brand Image among the customers of cell phone; it had the highest standardized coefficient value, 0.480 as well as the highest t-value, 15.248, followed by Clarity with standardized coefficient value, 0.361 and t-value, 11.463.

8. CONCLUSION

The aim of this research is to establish guerrilla marketing tactics as frugal innovation technique in the field of marketing. A field study on cell phone buying behavior is conducted to assess the impact and acceptability of guerrilla marketing techniques among the customers. Being untraditional and unconventional, guerrilla marketing has lots of potential to influence the buyer's decision as revealed in this study. This study has figured out some key factors of guerrilla marketing as considered by the customers of cell phone, in Indian cultural context which overall creates a variance of about 66%. This study also shows a positive influence of these factors on cell phone purchasing intention by 76% and perceived brand image by 51%. Eye-catching, Surprising, and clarity were found as more influential factors whereas Humor does not. These findings are in line with the finding of the study conducted by Costa (2014), and Tam and Khuong (2015). Humor may also play influential role if designed in an appropriate way. Hence, it may be concluded that the customers were get bored from the same routine advertisements and promotions and wants something new. Advertising needs a comeback as an element that influences people towards a purchase.

In Indian context, price of the product plays a predominant role in the selection decision of the customers and this is the reason why all the companies were so much cautious in setting the prices. As this research shows the positive impact of guerrilla marketing over the buying behavior of people which exhibits the acceptability of such unconventional and untraditional method of promotion among the customer pool. It is already established that these guerrilla marketing techniques were very cost efficient and low budget promotional methods as compared to traditional promotional ways. Usage of such low cost promotional methods brings down the promotional cost and total cost of the product which allows the firms and marketers to lower down their prices by availing the same quality of product to the customer. This will empowers the firms cost based competitive advantage and keep them far ahead with the competition.

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Relationship between Leadership and Innovation in Organisation: A Review

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Abstract
What is leadership? A simple definition is that leadership is the art of motivating a group of people to act toward achieving a common goal. In a business setting, this can mean directing workers and colleagues with a strategy to meet the company's needs.

Innovation in its modern meaning is a "new idea", creative thinking new imagination in the form of device or a method". Innovation is often seen as the application of better solution to a problem.

This review focuses on when and how leadership relates to innovation. The sample consists of 15 empirical studies in which leadership is treated as the independent variable and innovation as the dependent variable.

This paper aims to clarify the relationship between innovation and leadership, But what is the nature of this relationship, and How leaders can play a role in the different field of innovation?

Keywords: Leadership, innovation, creative thinking, strategy, better Solution and method.

1. Introduction

Leadership is both a research area and a practical skill encompassing the ability of an individual or organization to "lead" or guide other individuals, teams, or entire organizations.

Studies of leadership have produced theories involving features, situational interaction, function, behavior, power, vision and values, charisma, and intelligence, among others. What Leaders Need Now Is Innovation Leadership, They need it for themselves as they learn to operate in challenging, unpredictable circumstances. They also need to create a climate for innovation within organizations. Innovative systems, tools, and thinking are essential for organizational health and future viability.

Rogers (1983) suggests that innovation is a communication process about something newer or better. Innovation, like communication, is not a one-way linear event. Innovation is relational and dynamic. He defined a range of personal behaviors toward innovation based on a bell-shaped curve. Behavioral categories range from an innovator (at the highly innovative end) to a laggard (at the low innovation end). Rogers (1986) explained that diffusion is the process that communicates an innovation over time among members of a social system. Thus, diffusion of innovation is both a social and individual activity. He theorized that a small number of people innovate very quickly.

We view innovation in organisations as an outcome of individual, team, and organisational efforts joined to produce a new product, process, or service that is potentially attractive to a market. Innovation is then the result of a number of activities performed at different levels of the organisation and in its external world. We find the following definition of innovation useful: "the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organization or external relations" (OECD, 2005:46).

Experts have identified many types of innovation such as 'Product Innovation' that entails the introduction of a new product or a service that is new or considerably improved, 'Process Innovation' comprising the implementation of a new or a significantly enhanced production or delivery method, 'Supply Chain Innovation' in which innovations transform the sourcing of input products from the market and the delivery of output products to customers and 'Marketing Innovation' which results in the evolution of new methods of marketing with enhancements in product design or packaging, its promotion or pricing, among others.

Innovation is one of those words that we all use, agree is a positive thing and for the most part want more of. However, the term "innovation" like "leadership" seems to defy a commonly accepted definition. There is no shared interpretation of what we mean or what we are observing when we use the terms. Moreover, we lack practices for deliberately and consistently producing "leadership" and "innovation". This is evident in the fact that in spite of thousands of books on these subjects, reading and understanding the books doesn't enable us to be leaders or innovators. G, Strauss, and l, salyse" the human problems" prentice, hall, 1963.p 67.

When we create a new tool we are innovating. When we are not innovating we are the tool or the 'tool' is an extension of us. For example, the typewriter was an innovation in writing. At some moment, the typewriter becomes transparent (to both the typist and those concerned with what is being typed) and we simply have a typist typing. The tool appears again only when there is a breakdown or it no longer there are breakdowns, is the primary factor in determining whether we respond as leaders and innovate, or simply resist or cope with what is happening. William, H Newman, "the process of management"; concepts and behavior, fourth edition, Engel work, New Jersey, 1977, p100.

Innovation takes place at different levels from modest improvements on an existing product or process to dramatic and even historically significant breakthroughs in how we relate to the world. In all cases, the capacity to innovate will be a function of our commitments, what we want to accomplish and our relationship with the circumstances we perceive we are in.

2. The twofold process of managing innovation

We believe that leadership is an integral part of innovative organisational performance for at least two reasons. First, leaders construct the environments that favour creativity and ultimately innovation (Hemlin et al., 2008; Shalley and Gilson, 2004). Much of the leadership research focuses on the essential leadership actions in this construction of context and opportunities that promote the bottom up process of innovation. Leaders encourage intrinsic motivation (Avolio et al., 1999), facilitate problem solving (Tiemey et al., 1999), foster a positive team climate (Anderson and West, 1998), and establish and maintain high quality work relationships with team members (Olsson et al., 2008; Scott and Bruce, 1994).

Second, in a top-down process, leaders manage the strategic innovation goals and activities of their organizations. Leaders may set these goals and direct these activities by managing time, facilities, money, and knowledge resources (Drazin et al., 1999), by setting and managing individual and team goals, by defining expectations for creative performance (Shalley and Gilson, 2004), by managing rewards (Mumford and Gustafson, 1988), and by granting autonomy to individuals and teams (Hemlin, 2006b; Hunter et al., 2007). What one can observe and do in the context of a novel occurrence or insight might very well lead to innovation. For example, all of us have had 'big ideas' from time to time and done nothing about them only to learn later that someone has succeeded in bringing about exactly what we had imagined. This is what might distinguish a leader/innovator from a dreamer.

3. Innovation and Initiative

Initiative is defined by Dictionary "an introductory act or step; leading action: *to take the initiative in making friends.*" I define it as: "the ability to take necessary action, on your own accord, which gets the job done." I believe that initiative is one of the true elements that set people apart. It is not about whether you have initiative or not, everyone is capable of it, it is whether you use it or not. That is what sets performers apart from non-performers. David Sills, *international Encyclopedia of the social sciences*, the Macmillan & the Free Press, New York, 1999, p53.

Initiative is a strong word that every employee wants in their performance evaluations. Many people place it in their resumes as a standard adjective. Unfortunately, a good portion of them do not even know what it means to take the initiative. It is not just about taking the first step; it is about taking the first step in something productive that has meaning.

You have to be willing to take the first step and have the stamina to follow your initiative through to its conclusion. As a synonym, for initiative the word *leadership*. It should be no surprise that

leadership and initiative are similar. A good leader knows the meaning of initiative, has initiative, and possesses the stamina to fully execute his or her initiative. Take time today and use initiative to get something positive done for your organization or your career. Being described as a person with "initiative" is a great complement, but a complement that has to be earned.

In this framework for a new concept is presented and its relevance for considerations with respect to innovation and strategy is highlighted. The concept of innovation quality allows making a statement regarding the aggregated innovation performance in three different domains within an organization by comparing the result, being it a product, process or service innovation, with the potential and considering the process on how the result has been achieved. The three domains of innovation quality are product/service, process and enterprise. Walker, j "Human resources", planning evaluation perspectives, Irwin Illinois, 1986.p78.

4. Policy instruments and Innovation

The Innovation in Governance research group investigates processes through which new forms of governance emerge, develop and spread across different governance domains (problem areas and jurisdictions).We analyse the emergence of new forms of governance as innovation processes. In elaborating a theoretical framework we build on a new combination of concepts from policy and governance studies, organizational studies, innovation studies and science and technology studies. The Forms of governance are often articulated in an instrumental fashion as policy instruments, tools, or, more recently, as modes of governance. As such they may take on a life of their own and start to travel across different domains of application.

In seeking to capture this phenomenon we study innovation in governance by tracing and analyzing the development of policy instruments as socially constructed technologies of governance. A genealogical research approach is intended to open the black box of policy instruments which are often taken as given options for policy making. Within this view, we develop a concept of policy instruments which combines both models of how governance could or should be and working arrangements in particular political contexts.

In analysing innovation journeys we put a special focus on interactions between the development of models of governance in (social) science, policy design for particular purposes and the politics of reconfiguring governance in context. The policy instruments gain momentum as transnational constituencies which span these processes emerge and undergo institutionalization

5. Scope of this study

Although leaders have a significant impact on innovation activities, they don't work in a vacuum. First, researchers have pointed to the power of the context, with its contingency factors, that may interact with leaders' efforts to stimulate and manage innovation (Bass and Riggio, 2006; Hunt and Conger, 1999; Mumford et al., 2002; Shalley and Gilson, 2004; Yukl, 1999). The contingency factors tell us when leadership relates to innovation (i.e., the circumstances), thus they moderate the relationship between leadership and innovation outcomes. Second, we need more knowledge about the mechanisms leaders use to influence innovation. These are subsumed under another category of factors that mediate leadership and innovation, and they may tell us how leaders influence innovation (i.e., the leaders' influence at the individual, team, and organisational levels).

This paper reviews the factors by which leadership relates to innovation at the individual, team, and organisational levels of human behavior. Among others, Mumford et al. (2002), Oke et al. (2009), and Isaksen and Tidd (2006) have addressed these factors in their research. Elkins and Keller (2003) studied only the effects of leadership on various outcomes in R&D, we take a broader approach. we acknowledge the importance of multiple levels of analysis where organizational processes are likely nested in different levels (Drazin et al., 1999; Ford, 1996; Hemlin et al., 2008). For example, the effect of leaders on employees may depend on the climate of the team and the culture of the organization.

6. Procedure

We conducted our literature search in several steps. During 2015 we searched for journal articles using the online databases PsycINFO, PsycARTICLES, ISI Web of Science, Social Services Abstracts,

Sociological Abstracts, IBSS (International Bibliography of the Social Sciences), ASSIA (Applied Social Sciences Index and Abstracts), Business Source Premier, Econlit, and Regional Business News. We used the keywords leadership and innovation in our search. We also used the keyword creativity because it is occasionally used interchangeably with innovation in the literature. We analyzed each article's abstract in order to identify those articles that (1) were based on empirical studies, and (2) treated leadership as an independent variable, and innovation or creativity as a dependent variable. As we required that each journal article selected must have been peer reviewed, we did not consider unpublished articles and dissertations. At this point in our search we had identified 99 articles.

7. Policy foresight and interaction with innovation

Policy Foresight is a structured procedure to anticipate and reflect on plausible future paths of innovation journeys of policy instruments in interaction with developments of a governance domain. A diverse set of actors who are involved in the design of new policy instruments – be it as promoters or critics – are guided through a deliberative process. They construct future scenarios of innovation in governance and discuss their interactions with a broader social and ecological context to assess policy performances and reflect on sustainability strategies. Key questions are: how can development dynamics be anticipated and integrated into policy design, and how can policy innovations be embedded in structural contexts? During the process, which will be informed by results from our research, participants of the Policy Foresight contribute expectations towards future development dynamics and their view on reciprocal influences between policy instruments and domains. This provides societal actors with a platform for constructive dialogue on innovation in governance and sustainable development. William, H Holley, personal management and issues, New York, the druden press, 1983, p23.

The challenge is thus to analyse the interaction between policy instruments and innovation domains as a dynamic process of interpenetration and overlap in which both instruments and domains mutually constitute and shape each other.

To analyse the innovation development and governance patterns within domains, we distinguish between policy design, problem framing, and struggle for political authority as three interdependent processes from which governance patterns emerge in a path dependent manner.

Complementing our view on social dynamics shaping governance patterns in domains, we consider how ecological conditions and technological infrastructure shape political processes and function as particular selection environments for policy instruments.

With the aim of identifying typical patterns and mechanisms of innovation in governance, we see a different case studies that trace emerging forms of governance through time and space. In order to study the development of policy instruments in relation to their context of application, we conduct interlaced case studies on the innovation journeys of policy instruments and on the development of governance patterns within particular domains

8. Leadership, innovation and Social Change

Social change builds community-based responses that address underlying social problems on an individual, institutional, community, national and/or international level. Social change can change attitudes, behaviours, laws, policies and institutions to better reflect values of inclusion, fairness, diversity and opportunity. Social change involves a collective action of individuals who are closest to the social problems to develop solutions that address social issues .Kotter, J. P. (1990), A Force for Change: How Leadership Differs from Management, New York: Free Press.P37.

The ability to lead is vital to creating social change. Leadership is a *process* of which social change is be distributed, promoted, and expressed by leaders to multiple communities and diverse populations. A collective action from a collective group cannot come about if there is no unifying voice, vision, and/or goal. Leaders help to shape and provide a space for people to unite and reach towards their goals. They inspire and motivate others through their actions, behaviours, and words. For social change to occur within institutions, communities, or organizations, individuals would need to know what type of leaders they want to be in the social change process, and how their leadership can have an

impact within these arenas Ibid,p39. Great leaders who seek victories for humanity are usually not individuals who only fill institutional roles. They are individuals who have a great vision that will benefit humanity, are committed to achieving it with integrity and honesty, and persist in their efforts with compassion and courage despite seemingly insurmountable obstacles. Gabriel Almond, political development, Boston, 1970, p 33.

In our society, leadership is too often dedicated to accumulating wealth and power. Wealth and power are not "a victory for humanity." They are means to an end. The end may be something decent, such as combating poverty and hunger, but it may also be something selfish, such as personal aggrandizement, or something criminal, such as aggressive war. We must judge leaders not only by what they say, but by what they do, and we must hold them accountable for their actions.

There is much that needs changing in our world. A large percentage of the world's population lives in dire poverty, without safe drinking water or adequate nutrition. A billion people live on less than one dollar a day. Another billion live on less than two dollars a day. Some 25,000 children under the age of five die daily of starvation and preventable diseases. At the same time, the world spends over a trillion dollars annually on military forces, with the United States alone spending well over half the global total - Dale Carnegie, "comment trouver le leader" traduit de l'Anglais par divier Wayne Hachette, France.2010, p152.

We need to rethink what it means to be number one. We are all perishable, and we live on a perishable planet. The minimum responsibility of each generation is to pass the planet on, if not better than it was inherited, at least intact to the next generation. The power of our technologies, when combined with our capacity for complacency and our penchant for militarism, casts doubt on our ability as a species to continue to fulfill this responsibility.

9. Results

- Innovation and leadership are closely related. Leadership always has some focus on bringing about a better future. In this sense, leaders are necessarily innovators. We would not normally consider a spectator of the status quo to be a leader.
- Innovation is imperative if the quality of life in these trying circumstances is to improve. Innovation will make the world a better place for the younger generation.
- Leaders help to shape and provide a space for people to unite and reach towards their goals. They inspire and motivate others through their actions, behaviours, and words.
- If an established organization, which in this age necessitating innovation, is not able to innovate, it faces decline and extinction.
- Role and relationship between leadership and innovation, sustainable development is to release social , human ,and cultural dimension is based on interactive and mutual influence and human resources to achieve human and material goals.
- leadership is the art treatment of human nature Or the art of influencing human behavior to guide a group of people toward a specific goal in a manner to ensure Obedience and trust, respect, cooperation, and is known by some as the art of directing and influencing people .
- The importance of innovation is increasing significantly. In the current day economic scenario, innovativeness has become a major factor in influencing strategic planning.

Suggestions for future research on leadership and innovation

In addition to further research on the two ambiguous factors that we found (i.e.,psychological empowerment and team climate), we suggest the following area for future research on leadership and innovation. Stages of the innovation process. Further research is needed into how the innovation process interacts with leaders' efforts. This process consists of problem construction or definition (Reiter-Palmon and Illies, 2004), idea generation, evaluation, and promotion (Basadur, 2004), and of the planning, championing, and securing of funds for implementation (Scott and Bruce, 1994; Tushman and Nadler, 1986). The role of leaders is to provide a structure for the innovation process. In

the early stages of innovation, leaders may have to take a divergent an dexplorative approach to problem construction and ideation in which knowledge and ideas are broadly integrated. Similarly, a convergent approach, focused on moving forward may be more suitable in the later stages where implementation is the focus. However, there is little research on how leaders may facilitate these cognitive and emotional processes in individuals and in teams (cf. Isaksen and Tidd, 2006).

Conclusion

Businesses, institutions, and communities are feeling the limits of their standard processes. The added burdens of economic pain and widespread uncertainty have leaders everywhere looking for new ways forward. Innovative leadership—the use of innovative thinking and the leadership that supports it—is the key to finding what's new, what's better, and what's next. Thus, we can say that in today's competitive world in order to achieve competitive advantage leaders have to use innovative approach to be successful.

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Establishing the inter-relationship amongst various facilitating factors towards the survival of radio media in the digital age in context of India

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Abstract
Radio media is popularly referred to as "Cinderella medium" by advertising people. It can be spectacularly successful if everything clicks—the right offer, the right message, the right copy, the right stations. Or radio spots can fall on deaf ears. [1] *Present research being an application based research, therefore, explores various success criteria or facilitators behind the success of radio media as it continued to be one of the favorite entertaining medium particularly in developing country such as India. Further , it tries to study the inter-relationships amongst the explored factors using Interpretive Structural Modeling Methodology.*

Keywords: Radio advertising ; ISM methodology ; Media mix advertising ; Broadcasting; Digital age

1. Introduction

Thrilled by the success of television , media-watchers in the 1940s and 1950s confidently forecasted the imminent death of radio. However, with the advent of rock and roll innovation, radio gained an even bigger following than before and proved their predictions wrong. Over the decades , radio media is introducing new-new things and gradually adapting itself to the tastes of newer generations of listeners . There are music stations that played music 24 hours a day . Then there are stations that cater or are dedicated to specific genres of content such as talk radio, punk rock stations anticipating the emergence of Spotify and iTunes by a decade or more [1-4].

As far as share of radio media sector is concerned , radio industry is a very small part of the broadcasting universe. At Rs 2,300 crore, radio media sector contributes to about 5% of the broadcasting sector in India. Its modest market share is probably the reason why the path to digitization of radio is so poorly defined. Radio should be as much a part of our master plan for the 'Digital India Vision 2020'[2].

Radio, as a medium gains from best of both worlds *i.e*. the multiplicity of genres as well as diversity of languages. It is not only interactive, but is also very local in nature and is free of costs, unlike cable and satellite television. While digital is growing exponentially, private FM radio in India is growing at a formidable 14.5%, and that is primarily because of FM expansion in tier 2 and 3 cities although the *ad pie* continues to be only 4% against 14 % in countries like US. However, there is a positive sign that it will grow to 7% in India by 2020 [5].

In the light of the above literary comments , this paper focuses on exploring the various facilitators or success drivers behind the continuing growth and popularity of the Radio media in today's digital age .

Objectives of the research work is hence two folds :

1) Firstly, it tries to explore the various drivers and challenges which has made the radio media , one of the entertaining media and still creating goosebumps amongst other modes of

entertainment in India. Research Gate , Mendeley software, Google scholar etc. has been used to literally explore the various success factors.

2) Secondly , it further attempts to study the inter-relationships amongst these facilitators using the MCDM technique Interpretive Structural Modeling Methodology .

The paper is arranged as follows : Section 2 deals with the drivers and challenges in still managing radio media as one of the effective advertising medium in a developing country such as India .

2. Drivers facilitating the success of Radio Media [2-3]

Driver 1: **Technological advancement / Ever changing technology [ECT] :** This driver works with mixed reviews from both sections i.e. those who believes in analog FM technology and the other who believes that its is the technological advancement which could drive both content and revenue. For instance, All India Radio, has introduced digital radio mondiale (DRM) transmitters. These are now capable of transmitting signals in analog, digital or even simulcast mode (that is, a mix of both analog and digital). This progressive technology has replaced 37 obsolete medium wave and short wave transmitters of AIR.

Driver 2 : Terrestrial Radio / Community radio [VTR] [1-4]: It has its importance beyond its rupee value . Besides regular programming and the entertainment that it provides, it has always played the age-old role in disaster management. During situations like the 2004 tsunami, and the 2013 Uttarakhand floods, radio played a stellar role in conveying information on relief work, aid and recovery efforts when other mediums became inaccessible. Local news is the lifeline of radio broadcasting. Today, there are more than 180 community radio stations across India, broadcasting in languages like Bundelkhandi, Garhwali, Awadhi and Santhali — tongues that typically find little or no space on television .

Driver 3 : On demand services given by streaming platforms [ODS/SP] : The trend of AIR shifting to DRM is encouraging. The digital audio entertainment sector is fast changing. The likes of *Saavn* and *Gaana* are establishing themselves and have become a major competitor to the radio industry today. While they are seamlessly interactive, they also offer on-demand services, etc.

Driver 4 : Small budget [SB]/ Low production costs [LPC][1-4] : Low production costs are another advantage to local radio advertising. With a radio ad, you don't need a spokesperson or an elaborate set; you just need a good, well-written script. While the glitz and novelty surrounding online radio stations can make it seem that such stations are taking over the market, the truth is that local radio is still as relevant as ever and offers small business owners a way to reach a lot of people without spending all of their marketing budget.

Driver 5: New FM stations [NS]: According to Prashant Panday, MD & CEO of *Radio Mirchi*, (FM radio station of India) , one of the major reasons for growth are the new stations coming up under Phase III. He also stated that the generally poor economic conditions (despite claims of 7%+ GDP growth) was a reason as this resulted in advertisers spending more on promotions than brand building, helping radio growth.

Driver 6 : Fast growth of working population [FGWP]: Other reasons include fast growth in population that is out of home (car population rising, more traffic on roads, no entertainment on public transport, etc) leading to a captive audience for radio and radio being the best way to reach rich audiences (car listenership, long hours) and those actually interested in shopping (last medium consumed before entering a shop).

Driver 7 : Multiple sectors need advertising [MS] : Tarun Katial, CEO of Reliance Broadcast Network Limited (RBNL), which runs 92.7 Big FM, also said expansion into new geographies with launch of new stations will help radio. “Radio advertising growth will be driven by increasing spends from FMCG, BFSI, auto, media, and retail. The launch of new stations will expand the target audience while resulting in a wider reach. Lastly, a push towards measurement across more markets will only add to the growing radio ad spends for the year.

Driver 8 : Multi-purpose Radio Media [MPRM] [2] [1-4]: Audio programs easily surmount barriers linked to literacy — allowing even the unlettered to comprehend and absorb news and information. The cost of content production is lower than that incurred on producing visuals — typically one-fifth to one-tenth of the latter. This allows cheaper broadcasting in a bewildering variety of languages, dialects and creative forms.

Driver 9 : Accessibility and affordability [A&A] : The technology, having existed for more than 100 years, is not rocket science either. It is now, in fact, possible for even laypersons to design and manufacture broadcast transmitters and receivers. The accessibility of radio and the economy of the medium have led to a proliferation of local radio stations that can cater to niche populations in limited geographies.

Driver 10 : People perceptions and habits [PPH] : It is not without reason that radio has been the medium of choice for activists and people's movements. Further, listening to the morning news on radio remains one of most widely reported habits across the globe.

Driver 11: Radio script / format [RS/F]: Without a truly great script, everything else on this list is just window dressing. A poor script can waste the hard labor , the best production , talent , time slot . So, the pressure is really on to make that script shine. Radio stations sell time, and they sell access to markets. The key feature of a radio station is its format—the type of programming it features and the style of the announcers. The format determines the audience the station appeals to, and the audience it delivers to advertisers. Some local stations are affiliated with national broadcast networks such as AIR . These stations have more credibility as a news source, and consequently will be able to charge higher rates.

Driver 12 : High frequency of advertisements [HFA] : Frequency refers to how many times your ad airs in a short amount of time. A commercial that airs multiple times in a day has a better chance of reaching the listener than a commercial that only airs a few times in a week.

Driver 13 : Roadblocks [RB][4] : If your audience is fairly general and you have successfully tested radio ads on one station, you may want to consider running ads on many stations at the same time. The practice of airing television or radio ads on several stations simultaneously is called a roadblock. The advantages of this strategy are that you get multiple exposures, reach people who frequently switch stations, and are more likely to benefit from word-of-mouth or viewers talking you up after the ads have run.

Driver 14 : Negotiating Rates [NR][4] : The real fun in radio advertising is negotiating rates. Try to wait until a slow season, and then call every station that meets your demographics. Tell them either how much money you are considering spending on their station or how many spots you intend to place. Also tell them nicely, but firmly, that you are only going to run ads on the station or stations that give you the best rate deals. Get one or more of them to show you their ratings book, ideally from Arbitron, and compare how many people in your target audience they will be reaching.

Driver 15 : Capturing maximum reach [CMR] : Reach is the number of people captured i.e. people listening to you. If your objective is promotion, meaning you want the target audience to take a specific action, reach is required. Advertising over a longer period of time , advertising during multiple times of day , using a few different stations, taking advantage of short-duration commercials usually helps. A High Impact Plan (HIP) using six-second ads at the beginning of every commercial break all day long or you could opt for a 15 seconds ad with a short and sweet message also is a plus point .

Driver 16 : Overcoming the impact of demonetization[OID] : The impact of demonetization has been very high on media companies. November 2016 was a terrible month, of course. But the impact of demonetization is being felt in Jan-March 2016 also. Only December 2016 was good, because payment apps, banks, and the government itself spent a lot on advertising. The advertisers are cutting advertisement spends in Jan-March 2017 to manage their profit goals. Like all mediums, radio also suffered as business sentiment reduced in the months post demonetization.

3. ISM Methodology

Interpretive structural modelling methodology or ISM [5] is a known technique to map the relationships amongst the relevant elements as per decision maker's problems in a hierarchical manner. Starting with the identification of elements , it proceeds with establishing the contextual relationships between elements (by examining them in pairs) and move on towards developing the structural self-interaction (SSIM) matrix using VAXO [5] and then initial reachability matrix and final reachability matrix and rearranging the elements in topological order using the level partition matrices . A *Mic-Mac* analysis is performed afterwards which categorize the variables as per the driving and dependence power in to autonomous, dependent, driver and linkage category. Finally, a diagraph can be obtained.

4. Case example

Around 16 facilitating factors developed in section 2 *viz*. Technological advancement / Ever changing technology [ECT] ; Terrestrial Radio/Community radio[TR/CR]; On demand services given by streaming platforms (ODS/ SP); Small budget / Low production costs [LPC]; New FM radio stations [NRS]; Fast growth of working population [FGWP]; Multiple sectors need advertising [MS]; Multi-purpose Radio Media [MPRM]; Accessibility and affordability [A&A]; People perceptions and habits [PPH]; Radio script / format [RS/F]; High frequency of advertisements [HFA]; Roadblocks[RB]; Negotiating Rates [NR]; Capturing maximum reach [CMR]; Overcoming the impact of demonetization [OID] have been further studied for the possible interrelationship amongst them .

4.1 Construction of Structural Self-Interaction Matrix (SSIM), Initial reachability matrix (IRM) and Final reachability matrix (FRM)

SSIM matrix gives the pair-wise relationship between two variables *i.e. i and j* based on VAXO. SSIM , IRM and FRM are shown below in table 4.1.1 , table 4.1.2 and table 4.1.3 respectively.

Table 4.1.1: SSIM matrix for pair wise relationship amongst facilitating factors or drivers

S. No	Barriers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		ECT	TR/ CR	ODS	LPC	NRS	FGWP	MS	MPRM	A&A	PPH	RS/F	HFA	RB	NR	CMR	OID
1	ECT		O	V	O	V	A	A	V	X	A	V	V	V	A	V	V
2	TR/ CR			O	X	O	A	A	X	X	A	V	V	V	A	V	V
3	ODS				O	V	A	A	V	X	A	V	V	V	A	V	V
4	LPC					V	A	A	V	X	A	V	V	O	X	V	V
5	NRS						A	A	V	X	A	V	V	V	A	V	V
6	FGWP							A	V	X	A	V	V	V	A	V	V
7	MS								A	A	A	V	V	V	A	V	V
8	MPRM									X	A	V	V	V	A	V	V
9	A&A										A	V	V	V	A	V	V
10	PPH											V	V	V	A	V	V
11	RS/F												V	V	A	V	V
12	HFA													X	A	V	V
13	RB														A	V	V
14	NR															V	V
15	CMR																V
16	OID																

Table 4.1.2: IRM for pair wise relationship amongst the facilitating factors

S.No	Barriers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		ECT	TR/CR	ODS	LPC	NRS	FGWP	MS	MPRM	A&A	PPH	RS/F	HFA	RB	NR	CMR	OID
1	ECT	1	0	1	0	1	0	0	1	1	0	1	1	1	0	1	1
2	TR/CR	0	1	0	1	0	0	0	1	1	0	1	1	1	0	1	1
3	ODS	0	0	1	0	1	0	0	1	1	0	1	1	1	0	1	1
4	LPC	0	1	0	1	1	0	0	1	1	0	1	1	0	1	1	1
5	NRS	0	0	0	0	1	0	0	1	1	0	1	1	1	0	1	1
6	FGWP	1	1	1	1	1	1	0	1	1	0	1	1	1	0	1	1
7	MS	1	1	1	1	1	1	1	0	0	0	1	1	1	0	1	1
8	MPRM	0	1	0	0	0	0	1	1	1	0	1	1	1	0	1	1
9	A&A	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1
10	PPH	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1
11	RS/F	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1
12	HFA	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1
13	RB	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1
14	NR	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1
15	CMR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
16	OID	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Table 4.1.3: FRM for pair wise relationship amongst the facilitating factors

S.No	Barriers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	D.P
		ECT	TR/CR	ODS	LPC	NRS	FGWP	MS	MPRM	A&A	PPH	RS/F	HFA	RB	NR	CMR	OID	
1	ECT	1	1	1	1	1	0	0	1	1	0	1	1	1	0	1	1	12
2	TR/CR	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	15
3	ODS	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	14
4	LPC	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	15
5	NRS	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	14
6	FGWP	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	15
7	MS	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	15
8	MPRM	0	1	0	1	0	0	1	1	1	0	1	1	1	0	1	1	10
9	A&	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	12

	A																	
10	PPH	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16
11	RS/F	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	5
12	HFA	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	4
13	RB	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	4
14	NR	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16
15	CMR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
16	OID	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	De.P	10	11	10	11	10	9	10	11	11	2	12	14	14	5	15	16	

4.2 Level Partition

From the final reachability matrix, reachability and final antecedent set for each factor are found. The elements for which the reachability and intersection sets are same are the top-level element in the ISM hierarchy. After the identification of top level element, it is separated out from the other elements and the process continues for next level of elements. Reachability set, antecedent set, intersection set along with different level for elements have been shown below in table 4.2.1- 4.2.8.

Table 4.2.1: Iteration I

S. No.	Reachability set	Antecedent set	Intersection set	Level
1	16	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16	**16**	**I**
2	15,16	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15	15	
3	12,13,15,16	1,2,3,4,5,6,7,8,9,10,11,12,13,14	12,13	
4	11,12,13,15,16	1,2,3,4,5,6,7,8,9,10,11,14	11	
5	2,4,8,9,11,12,13,15,16	1,2,3,4,5,6,7,8,9,10,14	2,4,8,9	
6	1,2,3,4,5,7,8,9,11,12,13,15,16	1,2,3,4,5,6,7,9,10,14	1,2,3,5,7,9	
7	1,2,3,4,5,6,7,8,9,11,12,13,15,16	2,3,4,5,6,7,9,10,14	2,3,5,6,7,9	
8	1,2,3,4,5,6,7,8,9,11,12,13,14,15,16	2,4,6,7,10,14	2,6,7,14	
9	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16	10,14	10,14	

Table 4.2.2: Iteration / Levels

S. No.	Reachability set	Antecedent set	Intersection set	Level
2	**15**	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15	**15**	**II**
3	12,13,15	1,2,3,4,5,6,7,8,9,10,11,12,13,14	12,13	
4	11,12,13,15	1,2,3,4,5,6,7,8,9,10,11,14	11	
5	2,4,8,9,11,12,13,15	1,2,3,4,5,6,7,8,9,10,14	2,4,8,9	
6	1,2,3,4,5,7,8,9,11,12,13,15	1,2,3,4,5,6,7,9,10,14	1,2,3,5,7,9	
7	1,2,3,4,5,6,7,8,9,11,12,13,15	2,3,4,5,6,7,9,10,14	2,3,5,6,7,9	
8	1,2,3,4,5,6,7,8,9,11,12,13,14, 15	2,4,6,7,10,14	2,6,7,14	
9	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15	10,14	10,14	

Table 4.2.3: Iteration / Levels

S. No.	Reachability set	Antecedent set	Intersection set	Level
3	**12,13**	1,2,3,4,5,6,7,8,9,10,11,12,13,14	12,13	**III**
4	11,12,13	1,2,3,4,5,6,7,8,9,10,11,14	11	
5	2,4,8,9,11,12,13	1,2,3,4,5,6,7,8,9,10,14	2,4,8,9	
6	1,2,3,4,5,7,8,9,11, 12,13	1,2,3,4,5,6,7,9,10,14	1,2,3,5,7,9	
7	1,2,3,4,5,6,7,8,9,11,12,13	2,3,4,5,6,7,9,10,14	2,3,5,6,7,9	
8	1,2,3,4,5,6,7,8,9,11,12,13,14	2,4,6,7,10,14	2,6,7,14	
9	1,2,3,4,5,6,7,8,9,10,11,12,13, 14	10,14	10,14	

Table 4.2.4: Iteration IV

S. No.	Reachability set	Antecedent set	Intersection set	Level
4	**11**	1,2,3,4,5,6,7,8,9,10,11,14	11	**IV**
5	2,4,8,9,11	1,2,3,4,5,6,7,8,9,10,14	2,4,8,9	
6	1,2,3,4,5,7,8,9,11	1,2,3,4,5,6,7,9,10,14	1,2,3,5,7,9	
7	1,2,3,4,5,6,7,8,9,11	2,3,4,5,6,7,9,10,14	2,3,5,6,7,9	
8	1,2,3,4,5,6,7,8,9,11,14	2,4,6,7,10,14	2,6,7,14	
9	1,2,3,4,5,6,7,8,9,10,11, 14	10,14	10,14	

Table 4.2.5: Iteration V

S. No.	Reachability set	Antecedent set	Intersection set	Level
5	**2,4,8,9**	1,2,3,4,5,6,7,8,9,10,14	2,4,8,9	**V**
6	1,2,3,4,5,7,8,9	1,2,3,4,5,6,7,9,10,14	1,2,3,5,7,9	
7	1,2,3,4,5,6,7,8,9	2,3,4,5,6,7,9,10,14	2,3,5,6,7,9	
8	1,2,3,4,5,6,7,8,9,14	2,4,6,7,10,14	2,6,7,14	
9	1,2,3,4,5,6,7,8,9,10,14	10,14	10,14	

Table 4.2.6: Iteration VI

S. No.	Reachability set	Antecedent set	Intersection set	Level
6	**1,3,5,7**	1,3,5,6,7,10,14	1,3,5,7	**VI**
7	1,3,5,6,7	3,5,6,7,10,14	3,5,6,7	
8	1,3,5,6,7,14	6,7,10,14	6,7,14	
9	1,3,5,6,7,10,14	10,14	10,14	

Table 4.2.7: Iteration VII

S. No.	Reachability set	Antecedent set	Intersection set	Level
7	6	6,10,14	6	**VII**
8	**6,14**	6,10,14	6,14	
9	6,10,14	10,14	10,14	

Table 4.2.8: Iteration VIII

S. No.	Reachability set	Antecedent set	Intersection set	Level
9	**10**	10	10	**VIII**

4.3 Driving Power and Dependence diagram

Driving Power																	
	16		PPH			NR											
	15									FGWP	ODS	TR/CR,LPC					
	14										NRS						
	13																
	12										ECP	A&A					
	11																
	10		Driving									MPRM					
	9												Linkage				
	8																
	7																
	6																
	5									Dependent			RS/F				
	4	Autonomous													RB, HFA		
	3																
	2															CMR	
	1																OID
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Dependence →																

4.4 ISM Diagraph

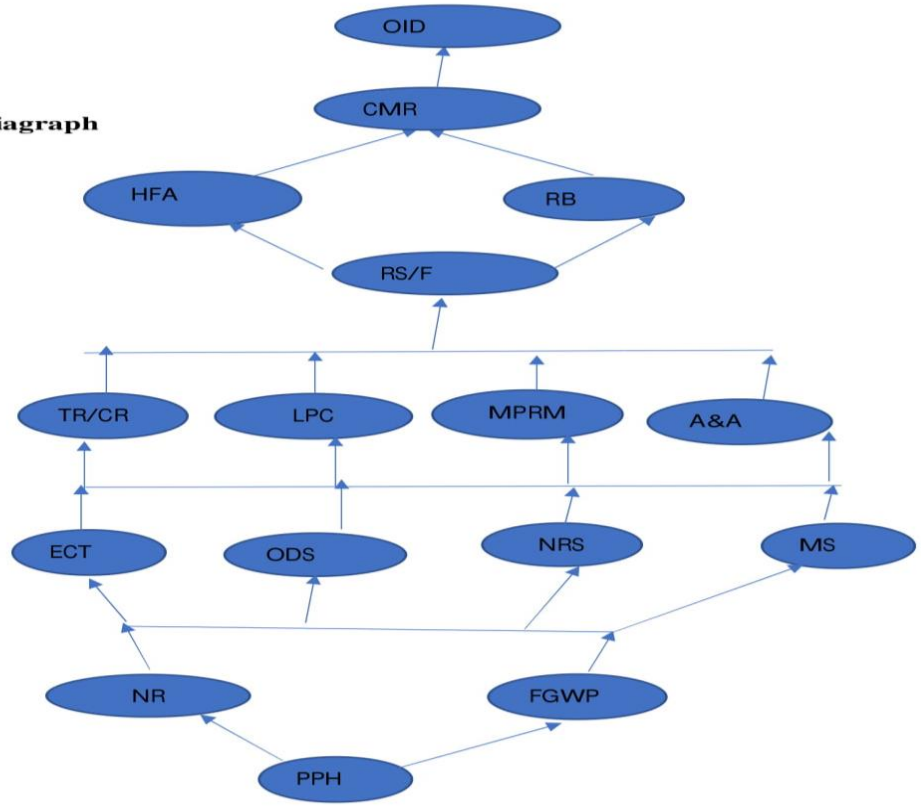

Fig 4.4.1: ISM Diagraph

5. Conclusions

Present research work tries to explore the various facilitating factors behind the success of radio media as one of the popular entertaining media in India. It further tries to explore the inter-relationship amongst them using ISM methodology .

6. Literary Suggestions and Recommendations

Success through radio media can be achieved through the following literary suggestions and recommendations .

- Knowing your target audience [KTA]: **It is important to know your target audience to be appropriate . Making a list of radio station helps. Radio stations also offers programs you want to know more about before you buy.**
- **Lot of radio listening [LRL] :** It is required to pay attention to what catches your ear, and what passes you by. Which ads speak to you? Which ones are memorable, hours, or even days later? Most important, remember that you can paint any picture you want in the minds of the listeners. You don't have to rely on special visual effects; this can all be done with voice talent and some sound effects. And the results can be incredible.
- Serious casting [SC] : **So, you have a great script. Now you need to bring it to life. And the first step in that process is to hire the perfect voice talent for the job. Voice actors are consummate professionals and want to give you just what you pay for.**
- Good Production Is Essential [GP] :**Unlike television commercials, production is more simple for a radio commercial. You need a good, imaginative script, voice talent, music, and sound effects. However, that doesn't mean you should slap something together. Your copy isn't relying on any visuals, so it's vital you capture the listener's attention from the start.**
- **Find the most affordable rates [AR] :** Take advantage of the low ad rates for radio. Ad rates are always on the rise, but the costs are still more affordable than visual mediums like television. Use your negotiating skills to get a good deal on an advertisement bundle. The more ads you buy, the better rates you'll be able to get.
- Right timing [RT] : **Advertisement rates are generally less expensive in the first and third quarters. Radio commercials in these time frames are easier to negotiate and cheaper for you to advertise. What's more, the seasonality of the ad buy can influence your creative approach, making the selling message even more powerful.**
- **Radio advertising cost [RAC]:** The cost of a 15-, 30-, or 60-second radio commercial will depend upon the frequency of the advertisement broadcast and the time of day that the announcement runs. Morning and evening drive times are usually more expensive than middle-of-the-day or late-night spots because the radio audience tends to peak during commuting hours.
- **Choice of radio station [CRS]:** Your target market should determine the type of station you choose to advertise on. If you are looking to appeal to men between the ages of 18 and 30, for instance, you might want to consider advertising on an all-sports station or an FM rock station.
- **Buying Radio Time [BRT]:** Radio stations design their programming to attract certain listeners, and then sell those listeners to advertisers in tiny increments. A radio station has an ad time inventory of about 18 minutes per hour, which it sells in increments of 15 seconds, 30 seconds, and 60 seconds (:15s, :30s, and :60s). But not all minutes are valued equally. Audience size shifts dramatically throughout the day, and radio rates vary to reflect the change in the estimated number of listeners you are reaching.
- **Choose your time slots [TS]: Not all minutes have the same value, so choose your time carefully.** The day is divided not into hours but into day-parts: A.M. drive time, 6 a.m. to 10 a.m., has the most listeners. They are at their most receptive, too—ready for the news of the day, and the news of your product as well. Midday, 10 a.m. to 3 p.m., will have considerably fewer

listeners, but they are often very loyal to a certain station. P.M. drive time, 3 p.m. to 7 p.m., will have almost as big an audience as the morning drive time. These people may be in more of a buying mood than those rushing to work in the morning.

- **Radio prices based on slots**: Radio prices are based on the day-part, the length of the spot you run, and the frequency, or the number of times your *ad* will air over the course of a certain period. If you're comparing radio to advertising in the newspaper, you might say that the day-part is analogous to what section of the newspaper you appear in, the length is equivalent to the size of the *ad*, and the frequency is comparable to how many days your *ad* appears in the paper.
- **Writing Radio copy**: You can write your own *ad* copy or you can hire an agency or have the radio station do it. You need to make sure that your *ad* meets the criteria *viz*. people's attention; Gets across one or two powerful, simple, and easily conveyed messages that will drive people to buy your product or service; has a call to action, such as a limited-time special offer; clearly states the next step, such as the location of the store to visit, the website to go to, or the phone number to call; has plenty of repetition.
- **Radio *ads* require repetition to work** : A minimum run of at least 15 *ads* on one station during a one-week period is recommended. Furthermore, if your entire advertising run on a particular station will be fewer than 60 spots during a month, try to keep the *ads* within a particular time slot. This way, you will reach the same listening audience often enough to create an awareness of, and ideally a desire to buy or inquire about, your product or service. If your spots run on an *erratic* schedule, you might reach the full listenership of the station, but you won't be reaching any one group often enough to motivate them to take action.

Note : Psychologically speaking, the average person needs to hear an advertising message three times per week for it to be memorable. That's called a "Three Frequency." Knowing what we know about radio listening habits and average time spent listening, a message must be played about 21 times per week to reach the average listener three times.*

** Reach and frequency are opposing forces in the radio advertising realm. They compete with each other for dominance.*

Success = 21 Ads per Week, 52 Weeks per Year per Station. In radio lingo, we call that a 21/52 schedule, or branding.

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On exploration of various challenges faced by Indian Retail and Denim industry in context of men's apparels and recent trends

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Abstract
Indian apparel industry is the second largest contributor in the retail industry after food and grocery. Add on to it the entry of international brands , changes in preferences from non-branded to branded, large young consuming population which has made India a highly lucrative market. Overall, Indian retail scenario has shown sustainable long-term growth as compared to other developing economies . Present paper which is an application based paper tries to explore the various challenges faced by Indian apparel industry in context of Indian retail and denim wear . The situation has been studied majorly in context of men's wear. After recognizing the various barriers , it tries to establish the inter-relationship amongst them using ISM methodology.

Keywords: Indian apparel industry ; ISM methodology ; Men's wear ; Indian Retail and Denim industry

INTRODUCTION

Economic expansion is happening across Asia, but we expect that 2019 will be the year in which India will take center stage. Indian economy is eventually getting known for its speed and shifts in consumer preferences. The Indian middle class is forecast to expand at 19.4 percent a year over the same period, outpacing China, Mexico and Brazil. As a result, India is set to move from being an increasingly important sourcing hub to being one of the most attractive consumer markets outside the Western world . Increasing disposable income, brand awareness and increasing tech-savvy millennial population are the driving factors of corporatized retail within the country. Indian apparel industry is the second largest contributor in the retail industry after food and grocery. Add on to it the entry of international brands , changes in preferences from non-branded to branded, large young consuming population which has made India a highly lucrative market. Overall, Indian retail scenario has shown sustainable long-term growth as compared to other developing economies . Looking at the past figures , Indian retail market which was at its worth of 41,66,500 crores INR in 2016 1,2,3 is expected to reach at whopping 1,02,50,500 crore INR by 2026 registering a promising CAGR of 9-10% which includes the registered growth of CAGR of 9% by current fashion retail market . With a GDP growth rate of 7% , India has an edge over developed markets of the US, Europe and Japan which are expected to grow at a rate of 2-3% . Favorable trade policies and increased penetration of organized retail among other factors contribute in making Indian fashion industry attractive for investors.

If we analyze the market segment wise , this market hugely caters to three categories viz. women wear , kids wear and men's wear. Currently menswear is the major chunk of the market at 43% (Rs 72,000 crore) and is growing at a compounded annual growth rate (CAGR) of 9%. The India Menswear Market Analysis 2010-2014 by Venn Research found that total revenue from menswear

was $11.8 billion in 2009, representing a CAGR of 8.6% from 2005 to 2009. Industry estimates peg the formal suits, jackets and blazers segment at Rs 4,500 crore. Presently, men's wear holds major share in the apparel market. It accounts for 41% of the total market. Women's wear contributes almost 38 per cent, while kids' wear contributes 21% of the market. It is estimated that both, men's wear and women's wear is expected to contribute 39% each to the total market in 2026, with kids' wear accounting for the rest 22 % .

The research work is organized as follows . Section 2 presents literature review on men's apparel market , its region wise distribution as well as price segmentation. Thereafter, section 3 presents the various challenges faced by fashion retail market .

LITERATURE REVIEW

2.1 Men's Apparel market[2]

- The various product categories of men's wear segment include shirts, trousers, suits, winter wear, *t-shirts*, denim, daily wear, active wear, ethnic, innerwear, etc. Shirts are the single largest category in men's wear, followed by trousers and denim.
- In recent years, denim, activewear and *t-shirts* have shown promising growth and are expected to grow at high CAGRs of 14%, 14% and 12% respectively, owing to changing preference of the consumers.
- While denim and *t-shirts* have matured as categories and have shown a consistent growth over a considerable period of time, activewear has recently evolved and has high growth potential. This is due to the boom in fitness and healthcare.
- The acceptance of smart casuals in corporate has boosted growth of western wear among working professionals. Formal wear is not restricted only to shirts and trousers but has a wide range of other options such as smart jackets, brightly colored or patterned shirts complemented with loafers etc.
- Men's denim wear is expected to grow at a rate of 14 % per year. Due to rise in media penetration in the country and global fashion awareness among youth, a shift in consumer's choice of denim wear has been witnessed in the country.

2.2 Region-Wise Distribution of Apparel Market

- Demand for various apparel categories varies substantially across the country particularly in metros such as Delhi/ NCR, Mumbai, Bengaluru, Chennai, etc., are the biggest markets for apparel in India and contribute 23% to the Indian apparel market.
- Considering the fact that almost 70% of the population resides in villages, the major contribution of urban cities to the apparel market indicates the higher purchasing power of the people in urban cities, their frequency of purchases and tendency to purchase premium and quality products.
- But lately, many global brands have started penetrating into Tier -I and Tier -II cities, while domestic brands are also strengthening their position in these markets.

2.3 Price Segmentation of Apparel Market

- The apparel market can be broadly divided into super premium, premium, medium, economy and low price segments. The medium price segment holds majority of the share among apparel segment by holding 29% followed by economy which holds 28 % of the share of the apparel market of the country.
- Many Indian consumers of the medium income level prefer medium price segments as it offers the assurance of certain minimum quality standards at a reasonable and affordable price. The super-premium and premium price categories are value driven categories and product offerings of these segments come from established brands.

Challenges observed for fashion wear Retail and Denim wear in India

This section explores various challenges literally mentioned in the research works over last 5-10 years . various research databases such as Mendeley software , Research gate , Google Scholar etc. has been explored to collect the same . Section 3.1 reviews the challenges before retail wear market whereas section 3.2 mentions the challenges before the denim market in India .

3.1 Challenges before retail wear in India

The apparel business is still largely "unorganized," with formal retail accounting for just 35% of sales in 2016. Its share is likely to reach around 45% by 2025 [1] is still a relatively low proportion. Some of the major challenges faced by fashion industry in the country are as follows:

3.1.1 Infrastructural bottlenecks and efficiency (IBE) : Indian fashion retail industry faces challenge of inadequate infrastructure such as poor conditions of roads, highways etc. Therefore, to grow to its fullest potential, it would have to invest heavily in infrastructure such as proper connectivity of roads, inland waterways, etc. [3].

3.1.2 Poor Internet penetration in the country (PIP) [6]: Despite e-commerce blooming in the country, India has poor Internet connectivity as compared to other growing economies. However, the quality of Internet services provided is poor due to lack of infrastructure. In addition, Cyber security is another major threat in e-tail industry.

3.1.3 Changing consumer behavior (CCB): In today's business environment, consumer is the king. With mass media penetration and growing disposable income, Indian consumers have become more demanding and adaptable to change in fashion and consequently , it has become challenging for retailers to keep up with shifting shopping demands.

3.1.4 Demographic environment factors (DPE) : These includes the diverse and rich Indian mosaic of climates and tastes (C&T) [2]; rising income inequality [RII] [3]; Income gap [IG] [4]; Possibility of corruption [PC][5]; Requirement of licenses for new entrants [RoL]; fashion sensitivity to the cross boarder policies and politics [FS]; shift in pricing strategies [SPS] .

3.1.5 Political factors – Risk of Disruption/ Trade related issues [RoD] : As 2018 ends, fashion companies find themselves in a cross current of trade-related news flow. A sharp rise in trade tensions between the US and other large economies seems set to increase costs for some players and increase the risk of disruption.

3.1.6 Political factors- Tariff Issues [TI] : At the same time, new trade agreements promise better trading conditions in certain instances. In the US, the fashion industry accounts for 6 percent of imports but pays 51% of tariff receipts, so the tariffs issue (TI) is critically important [6]. In addition, with new tariffs coming into force on goods from China (including leather clothing, woven fabrics and wool yarn), there is a direct feed-through to the consumer. Companies such as Samsonite and Gap, which have large manufacturing operations in China, have said they plan to raise their consumer prices [7].

3.1.7 Macro environmental factors [1,2,3,4]

3.1.7.1 Age [Age]: Demographic macroenvironmental factors such as age affect the clothing industry particularly the demand for larger jeans and pants sizes, such as relaxed or looser-fitting styles. Generally, many people become more sedentary when they get into their 40s and 50s. Also, decreases in birth rates in some areas will lower the demand for baby clothes.

3.1.7.2 Miscellaneous factors[MF]: such as Consumer characteristics, technology, government influence and the economy.

3.1.7.3 Consumer Factors [CF]: Consumer microenvironmental factors include cultures, norms, lifestyle, demographics and population changes. For example, a small clothing manufacturer needs to create styles that appeal to those of different cultures, especially if those cultural groups represent large enough segments of its market.

3.1.7.4 Technological Factors [TF]: These factors affecting the clothing industry include availability of resources, demand and production. For example, the scarcity of certain materials, such as leather may force retail and wholesale clothing companies to sell more faux or substitute leather products. Retailers may increase the prices of cotton clothing if they encounter shortages of this raw material, as they must pay their manufacturers more.

3.1.7.5 Legal and Political Factors [L&PF]: The industry has repeatedly been affected by issues such as workers' rights and child labor laws. Union workers in clothing manufacturing plants may picket their employers, especially if their wages or medical benefits are less favorable than workers in comparable industries. Activists who are not employed by the companies may also picket retailers who purchase clothing from countries known for violating child labor laws. This negative publicity may impact a small clothing retailers' sales and profits.

3.1.7.6 Economic Factors [**EF**]: Economic factors can have both positive and negative impacts on the clothing industry. During economic boom periods, people have more disposable income. Hence, they may buy more clothing, increasing sales for clothing manufacturers, wholesalers and retailers. However, recessions have the opposite effect. Consequently, retailers may be stuck with large amounts of inventory.

3.2 Challenges before Indian men's Denim wear market [6]

With new technologies, trends and higher market reach, this sector has promising growth potential. Even in rural areas, denim is becoming highly fashionable with most men and teenager girls opting denim wear over traditional outfits. Denim wear market is estimated to be Rs 29,203 crore in 2018 at a growth rate of CAGR of 12 % and reach Rs 91,894 crore by 2028. The market in India is dominated by men's segment, accounting 86% of the total market size. However, women denim wear segment is expected to show higher CAGR of 13% than men's segment (12%). Certain factors which are contributing as key growth drivers of denim wear in the country are enumerated below:

3.2.1 Youth as a growth driver (YGD) : Youth (15 to 29 years old) who comprise 26% of the consuming population, are a key growth driver of denim wear in the country. Increasing disposable income, comfort, quality and brand consciousness are major reasons behind increasing acceptance of denim wear among this young population.

3.2.2 Influence of international brand (IIB): The entry of the international brands in the country is one of the biggest drivers of denim wear. Their entry has widened the perspective of consumers which in turn has resulted in higher acceptability of new trends, styles in the market. The value growth within the denimwear owes to increased demand for enhanced product attributes: fashion quotient, stretch and lightweight fabric, varying colors, styling and detailing. This trend is emerging across both men's and women's segments.

3.2.3 Increased rural spending (IRS): Rural areas are developing at a rapid pace and so is their purchasing power. With the percolation of mass media, people in rural areas are also aware of fashion trends.

3.2.4 Inclination towards western trends (IWT): Their inclination towards western trends is another reason for the growing demand of denims in rural areas. The mid-value segment of denim wear, characterized by quality, value-for-money, and increasing styling quotient, is the preferred choice of people from rural areas.

3.2.5 **Casualization of fashion (COF):** The Indian casual wear market has evolved significantly over the years. Casual wear categories such as denim, activewear, casual shirts, and fashionable skirts are outpacing the growth of formal wear in India.

3.2.6 Alternative retail channel (ARC): Alternative apparel retailing is evolving in India in a rapid pace; jeans are no exception to this trend. Direct selling, home shopping and e-tailing are gaining momentum in the market.

3.2.7 Rise of private label (RPL) : Branded penetration in the market has a skew towards mid to premium price points and there is very limited offering in the value price points leading to pricing gaps in the market. These gaps in the market have provided an opportunity for retailers to launch their private label in the value segment. Private label led players such as FBB, Max and V-Mart have identified these gaps and have launched products in the value fashion segment.

3.2.8 Best performing categories of denim wear (BPC): Super premium jeans has emerged as the best performing category. Increasing popularity of luxury international brands coupled with rising income has increased in demand for super premium jeans, one of the best performing categories. Increasing penetration of the global brands in non-metros has provided ample options to the non-metro dwellers thus, resulting in widening the consumers of premium denim wear.

4. INTERPRETIVE STRUCTURAL MODELLING METHODOLOGY

Warfield [9] proposed the ISM technique in 1974. Following the process results in creating a structured graph from the set of unique interrelated variables . The process goes through the various steps *viz*. identifying the relevant elements and establishing a contextual relationship amongst them; then an Structural self- interaction matrix is developed to establish the lead to relationship amongst the two variables *I & j* . An initial reachability matrix is then created which eventually leads to the development of final reachability matrix and thereafter reachability set and antecedent set for each criterion . In every iteration a top level element is selected for which the reachability set and intersection sets are the same .

4.1 ISM Methodology for case example of Indian retail wear for Men :

Around 12 challenges have been recognized in the Indian retail viz. Infrastructural bottlenecks and efficiency (IBE) ; Poor Internet penetration in the country (PIP) ; Changing consumer behavior (CCB) ; Demographic environment factors (DEF) ; Risk of Disruption [RoD]; Tariff Issues [TI]; Consumer's Age [CA] ; Miscellaneous factors [MF]; Consumer Factors [CF] ; Technological Factors [TF] ; Legal and Political Factors [L&PF]; Economic Factors [EF].

4.1.1 Construction of Structural Self -Interaction Matrix (SSIM)

This matrix gives the pair-wise relationship between two variables *i.e. I and j* based on VAXO. SSIM has been presented below in Fig 1.

4.1.2 Construction of Initial Reachability Matrix and final reachability matrix

The SSIM has been converted in to a binary matrix called the initial reachability matrix shown in fig. 2 by substituting V, A, X, O by 1 or 0 as per the case. After incorporating the transitivity, the final reachability matrix is shown below in the Fig 3.

Table 4.1.2.1: SSIM matrix for pair wise relationship amongst barriers

	Barriers	1	2	3	4	5	6	7	8	9	10	11	12
		IBE	PIP	CCB	DPE	RoD	TI	CA	MF	CF	TF	L&PF	EF
1	IE		V	V	A	V	V	O	V	V	V	V	V
2	PIP			V	A	V	A	A	A	X	A	A	A
3	CCB				A	V	A	A	A	A	A	A	A
4	DEF					V	V	V	X	X	V	V	V
5	RoD						X	O	X	A	A	A	A
6	TI							O	A	A	A	A	A
7	CA								O	V	V	V	V
8	MF									A	A	A	A
9	CF										V	V	V
10	TF											A	A
11	L&PF												A
12	EF												

Table 4.1.2.2: Initial reachability matrix

	Barriers	1	2	3	4	5	6	7	8	9	10	11	12
		IBE	PIP	CCB	DPE	RoD	TI	CA	MF	CF	TF	L&PF	EF
1	IE	1	1	1	0	1	1	0	1	1	1	1	1
2	PIP	0	1	1	0	1	0	0	0	1	0	0	0
3	CCB	0	0	1	0	1	0	0	0	0	0	0	0
4	DEF	1	1	1	1	1	1	1	1	1	1	1	1
5	RoD	0	0	0	0	1	1	0	1	0	0	0	0
6	TI	0	1	1	0	1	1	0	0	0	0	0	0
7	CA	0	1	1	0	0	0	1	0	1	1	1	1
8	MF	0	1	1	1	1	1	0	1	0	0	0	0
9	CF	0	1	1	1	0	1	0	1	1	1	1	1
10	TF	0	1	1	0	0	1	0	1	0	1	0	0
11	L&PF	0	1	1	0	0	1	0	1	0	1	1	1
12	EF	0	1	1	0	0	1	0	1	0	1	1	1

Table 4.1.2.3 : Final reachability matrix

	Barriers	1	2	3	4	5	6	7	8	9	10	11	12	
		IBE	PIP	CCB	DPE	RoD	TI	CA	MF	CF	TF	L&PF	EF	D.P
1	IE	1	1	1	0	1	1	0	1	1	1	1	1	10
2	PIP	0	1	1	0	1	1	0	1	1	0	0	0	6
3	CCB	0	0	1	0	1	1	0	1	0	0	0	0	8
4	DEF	1	1	1	1	1	1	1	1	1	1	1	1	12
5	RoD	0	1	1	1	1	1	0	1	0	0	0	0	6
6	TI	0	1	1	0	1	1	0	1	1	0	0	0	6
7	CA	0	1	1	0	1	1	1	1	1	1	1	1	10
8	MF	1	1	1	1	1	1	1	1	1	1	1	1	12
9	CF	1	1	1	1	1	1	1	1	1	1	1	1	12
10	TF	0	1	1	0	1	1	0	1	1	1	0	0	6
11	L&PF	0	1	1	0	1	1	0	1	1	1	1	1	9
12	EF	0	1	1	1	1	1	0	1	1	1	1	1	10
	De.P	4	11	12	7	12	12	4	12	10	8	7	7	

D.P : Driving power ; De.P : dependence power**4.1.3 Level Partition**

From the final reachability matrix, reachability and final antecedent set for each factor are found. The elements for which the reachability and intersection sets are same are the top-level element in the ISM hierarchy. After the identification of top level element, it is separated out from the other elements and the process continues for next level of elements. Reachability set, antecedent set, intersection set along with different level for elements have been shown below in table 4.1.3.1 to table 4.1.3.6.

Table 4.1.3.1: Iteration I

S.No.	Reachability set	Antecedent set	Intersection set	Level
1.	**3,5,6,8**	1,2,3,4,5,6,7,8,9, 10,11,12	3,5,6,8	
2.	2,3,5,6,8	1,2,4,5,6,7,8,9,10,11,12	2,5,6,8	
3.	2,3,5,6,8,9	1,2,4,6,7,8,9,10,11,12	2,6,8,9	**I**
4.	2,3,5,6,8,9,10	1,4,7,8,9,10,11,12	8,9,10	
5.	2,3,4,5,6,8,9,10,11,12	1,4,7,8,9,11,12	4,8,9,11,12	
6.	1,2,3,4,5,6,8,9,10,11,12	1,4,8,9,11,12	1,4,8,9,11,12	
7.	2,3,4,5,6,7,8,9,10,11,12	4,7,8,9,11,12	4,7,8,9,11,12	

Table 4.1.3.2: Iteration II

S.No	Reachability set	Antecedent set	Intersection set	Level
2.	2	1,2,4,7,9,10,11,12	2	
3.	**2,9**	1,2,4,7,9,10,11,12	**2,9**	

4.	2,9,10	1,4,7,9,10,11,12	9,10	**II**
5.	2,4,9,10,11,12	1,4,7,9,11,12	4,9,11,12	
6.	1,2,4,9,10,11,12	1,4,9,11,12	1,4,9,11,12	
7.	2,4,7,9,10,11,12	4,7,9,11,12	4,7,9,11,12	

Table 4.1.3.3 : Iteration III

S.No.	Reachability set	Antecedent set	Intersection set	Level
3.	**10,11,14**	2,5,8,9,10,11 ,12,13,14	**10,11,14**	
4.	8,10,11,14	2,5,8,9,10,11, 12,13,14	8,10,11,14	
5.	8,10,11,13,14	2,5,8,9,10,11,12,13	8,10,11,13	
6.	8,10,11,12,13, 14	2,5,8,9,10,11,12	8,10,11,12	**III**
7.	8,9,10,11,12,13,14	2,5,8,9,11,12	8,9,11, 12	
8.	2,5,8,9,10,11,12,13,14	2,5	2,5	

Table 4.1.3.4 : Iteration IV

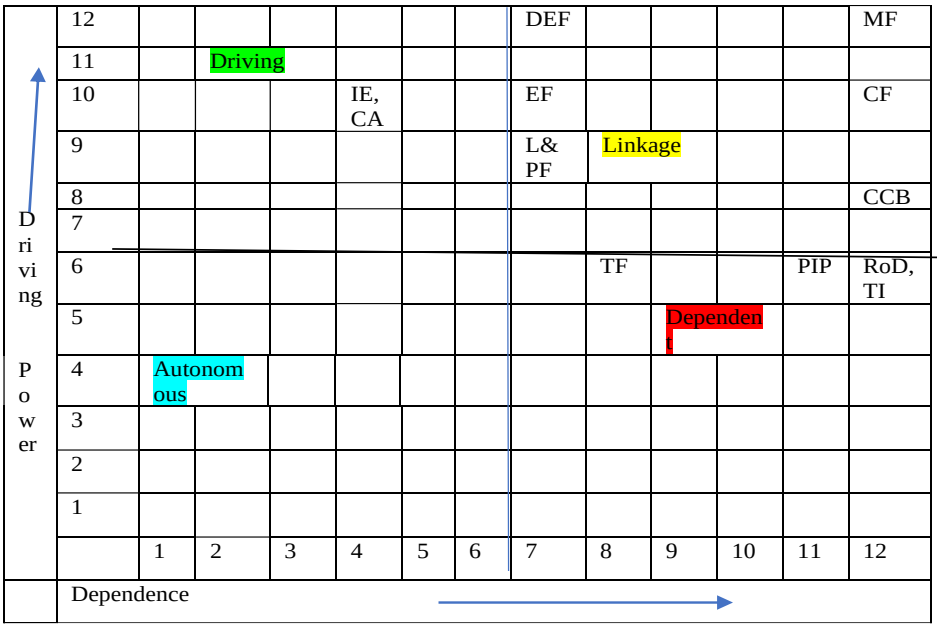
S. No.	Reachability set	Antecedent set	Intersection set	Level
5	**4,11,12**	1,4,7,11,12	**4,11,12**	
6	1,4,11,12	1,4,11,12	1,4,11,12	**IV**
7	4,7,11,12	4,7,11,12	4,7,11,12	

Table 4.1.3.5: Iteration V

S. No.	Reachability set	Antecedent set	Intersection set	Level
6	**1**	1	**1**	**V**
7	**7**	7	7	

4.1.4 Classification of factors

The critical success factors described earlier are classified in to four clusters *viz*. autonomous factor, dependent factors, linkage factors and independent / Driving factors are mentioned below.



4.2 ISM Methodology for case example of Indian Denim wear for Men

Similarly, around 8 challenges have been recognized in denim wear industry *viz.* **Youth as a growth driver (YGD) ; Influence of international brand (IIB) ; Increased rural spending (IRS);** Inclination towards western trends (IWT) **; Casualization of fashion (COF) ; Alternative retail channel (ARC); Rise of private label (RPL); Best performing categories of denim wear (BPC).** These are studied further for the possible inter-relationships amongst them using ISM methodology .

4.2.1 Construction of Structural Self -Interaction Matrix (SSIM) : This matrix gives the pair-wise relationship between two variables i.e. *I and j* based on VAXO. SSIM has been presented below in table 4.2.1.1.

Table 4.2.1.1: Structural Self- Interaction Matrix

	Barriers	1	2	3	4	5	6	7	8
		YGD	IIB	IRS	IWT	COF	ARC	RPL	BPC
1	YGD		V	V	V	V	V	V	V
2	IIB			V	A	V	A	A	A
3	IRS				A	A	A	A	A
4	IWT					V	V	V	V
5	COF						A	A	A
6	ARC							A	A
7	RPL								A
8	PC								

Table 4.2.1.2: Initial reachability matrix

	Barriers	1	2	3	4	5	6	7	8
		YGD	IIB	IRS	IWT	COF	ARC	RPL	BPC
1	YGD	1	1	1	1	1	1	1	1
2	IIB	0	1	1	0	1	0	0	0
3	IRS	0	0	1	0	0	0	0	0
4	IWT	0	1	1	1	1	1	1	1
5	COF	0	0	1	0	1	0	0	0
6	ARC	0	1	1	0	1	1	0	0
7	RPL	0	1	1	0	1	1	1	0
8	PC	0	1	1	0	1	1	1	1

Table 4.2.1.3: Final reachability matrix

	Barriers	1	2	3	4	5	6	7	8	D.P
		YGD	IIB	IRS	IWT	COF	ARC	RPL	BPC	
1	YGD	1	1	1	1	1	1	1	1	8
2	IIB	0	1	1	0	1	0	0	0	3
3	IRS	0	0	1	0	0	0	0	0	1
4	IWT	0	1	1	1	1	1	1	1	7
5	COF	0	0	1	0	1	0	0	0	2
6	ARC	0	1	1	0	1	1	0	0	4
7	RPL	0	1	1	0	1	1	1	0	5
8	PC	0	1	1	0	1	1	1	1	6
	De.P	1	6	8	2	7	5	4	3	

4.2.2 Level Partition : From the final reachability matrix, reachability and final antecedent set for each factor are found. The elements for which the reachability and intersection sets are same are the top-level element in the ISM hierarchy. After the identification of top level element, it is separated out from the other elements and the process continues for next level of elements. Reachability set, antecedent set, intersection set along with different level for elements have been shown below in table 4.2.2.1.

Table 4.2.2.1: Level partition table

S. No.	Reachability set	Antecedent set	Intersection set	Iterations
1	**3**	1,2,3,4,5,6,7,8	**3**	**I**
2	5	1,2,4,5,6,7,8	5	II
3	2	1,2,4,6,7,8	2	III
4	6	1,4,6,7,8	6	IV

5	7	1,4,7,8	7	V
6	8	1,4,8	8	VI
7	4	1,4	4	VII
8	1	1	1	VIII

4.2.3 Driving Power and Dependence Diagram

The critical success factors described earlier are classified in to four clusters *viz*. autonomous factor, dependent factors, linkage factors and independent factors are mentioned below.

Driving Power	8	YGD							
	7	Driving	IWT						
	6			PC			Linkage		
	5				RPL				
	4	Autonomous				ARC			
	3						IIB	Dependent	
	2							COF	
	1								IRS
		1	2	3	4	5	6	7	8
	Dependence →								

4.2.4 ISM model

An ISM model is developed (as shown in fig. 5 below) after arranging the elements as per their interaction or dependence relationships.

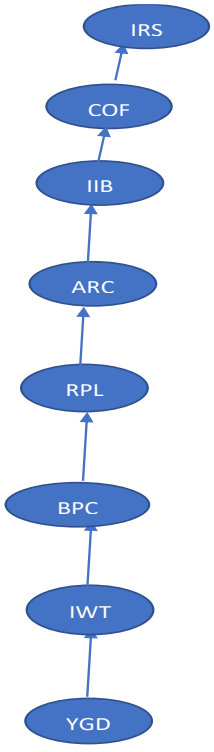


Fig 5 : ISM Model

5. Present and future trends of Indian apparel market

In India's high-growth, fast-changing retail apparel market, with significant new growth opportunities for both foreign and domestic players. As a result of it, Indian apparel industry is witnessing some specific trends.

5.1 Sustainable and eco-friendly manufacturing

With the time passing by, consumers are becoming more aware about environmental issues and increasingly adopting eco-friendly strategies . This involves reducing water consumption and techniques to avoid usage of organic colors in apparel manufacturing. Brands/ private labels have started catering to this market especially in babies, kids-wear and premium adult wear category segments.

5.2 Increased inclination towards smart garments

Upgradation in technology is witnessing some major trends in the form of smart apparels such as providing smart shirts to the "tech freak" population of the country. Increasing inclusion of smart casuals or semi-formals has resulted in acceptance of chinos and other relaxed trousers along with half sleeved shirts or *t-shirts*.

5.3 Continued rise of 'organized retail'

The Indian fashion retail industry is transforming rapidly and is seeing shift from unorganized to organized retail. Factors such as increase in income, increased penetration of branded wear, and awareness of fashion trends among consumers are amongst the contributing factors.

5.4 Apparel sales in e-commerce

Online shopping in India is not a new phenomenon anymore, although it is in nascent stage but blooming very rapidly. E-commerce has grown in recent years and has touched every person's life. It has played a very vital role in bridging the gap between consumers residing in Tier-I and Tier-II cities and premium wear sellers. It has made availability of premium brands in semi- urban areas where these brands have no retail outlets.

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Innovation in Startup Ecosystem: Determinants of Future Economic Development

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ABSTRACT
Start-ups are instrumental in shaping the MSME structure in the country for last few years. Young and talented businesses have been gaining momentum and increasing engagement with the customers. In these times it is very important to understand the basic nitty gritty details of start-up structure and growth model. The chapter aims at understanding the start-up growth model and even discuss the mental and physical blocks which an entrepreneur faces before starting a start-up. Innovation is just not a business model but a philosophy which every new and old business has to follow sometime down the business. Innovation is basic for survival and this cannot be denied. The research chapter aims at dealing all these important aspects of Innovation in Start-up ecosystem.

Keywords: Startup ecosystem, Innovation, MSME

INTRODUCTION

In present scenario of dynamic and complex marketing environment, we keep on observing different terms like innovation, entrepreneurship and start-ups. These concepts are related to private sectors which create a necessary part of entrepreneurship ecosystem and facilitates economic growth. Fostering entrepreneurship is vital for the economic development. Economic growth can be motived through business creations. Now a days, organizations and firms are pursuing innovation to not only to perform in market, but also to ensure survival.

Innovation has become an essential part of any business and must be acknowledged. It is important to induce innovation and innovative thoughts in all types of business, especially, in start-ups, where innovations are more demanded for enduring the business in early stage of business set up. It is necessary to identify the determinants which would help to play an essential role in all different types of businesses. Then only the business would be able to imbibe the innovative ideas for creation of new services.

In present scenario, different initiatives, projects, programmes and identical efforts have been adopted all around the world to increase and establish innovation program and entrepreneurship which will help to increase the growth of private sector and motivate the economic development. In the consistently rapid changing world when needs and preferences of customers are continuously changing, innovation is the only way to create new solutions for consumers.

Even though poor, entrepreneurship ecosystem and start-ups are gradually being formulated in India as governments, investors and entrepreneurs have understood the opportunities and challenges of new start-ups. These are providing more influential contribution in private sector and consequently have a positive effect on economic development of India. It is worthy to perceive the young generation of India is having enormous talent and capabilities to express a great wish for innovation and entrepreneurship. The collaboration between business houses and academic institutions have become significant to support the entrepreneurs and start-up business for establishing entrepreneurial networks and inducing innovation (Damicis, 2012). There are different types of organizations and initiatives who like to support start-ups to provide the business guidance and financial support.

STARTUP TREND

Now a days, everywhere, start-ups are being heard of be it in academics or in professional life, but still knowledge about the same is limited. It is difficult to find out whether a certain business goes under the category of start-ups or not. It is quite often that arguments around start-ups are blooming. This is

leading to a perspective that entrepreneurships and start-ups are not different and that they are just new businesses which have established a new trend because of its rapid growth and regarded as innovation activities.

However various approaches consider start-ups as mindset or business model which businesses adopt to be considered as start-ups (Sawers, 2011). Entrepreneurship is related with business activities in unfamiliar environment of uncertainties and challenges (Trott, 2017). Start-up is an organization which is dedicated to create something new under circumstances of exciting uncertainties. Start-ups cover different types of entrepreneurship programs irrespective of a firm size, scope or industry.

To remove the problems of various uncertainties, a loop of building, measuring, learning and feedback can be used. Lean start up method discusses about building product prototypes, outcome measurement by customer feedback and learning for making increments based on customer preferences. Some fundamental activities like validated and experiment-based learning helps to turn vision into a product which would be worthy for customers. Only by this start-up would be able to discover what kind of products must be built and how they can fulfil the needs of customers. Start-up is considered as a discipline of entrepreneurship which consists of setting a constructive step approach to lead a successful innovation proposed business.

Entrepreneurship success is about what a person is doing best for long period and becomes passionate for that. A technological innovation can initiate a business by skilful passion. Start-ups are involved with small capital which is joined with required cost structure and also depends on viability of business model. It is quite evident that start-ups are considered capital imbibed ventures, instead of that, they initiate small and provide fund to business by the support of necessary revenues. Discovery of niche market can be done through start-ups. They focus on attention of innovating with the need of mass investments. It is merely not an attractive idea which is going to build sustainable start-up. There are other aspects which must be taken care of like legal, manpower and financial issues. If conceived and executed properly start-ups would create a remarkable impact on economic growth.

STAT UP DEVELOPMENT STAGES

Lifecycle of start-up is defined and perceived differently by different individuals and experts. There cannot be clear and right approach of defining different stages of start-up. It is initiated from a vision to create solution for working hard to implement the required product and positioning the product in marketplace and at the end making product available for the consumers. The end stage of start-up is to plan the next step for the creation of future. There are five development stages of a start-up (Kraus, 2017). First stage is developing the vision, then funding stage, establishing the business and tracking the growth for getting the maturity in business and then finally getting acquired (McGowan, 2017). There are three perspectives of start-up experience; pull, transit and growth. There are various goals and activities for establishment and growth of the business. Pull stage is attributed by the discovering of product-market fit and to aim for retaining the business. For better performance transit and growth stages are more conscious steps for the better performance and growth. Following diagram shows the stages of start-up.

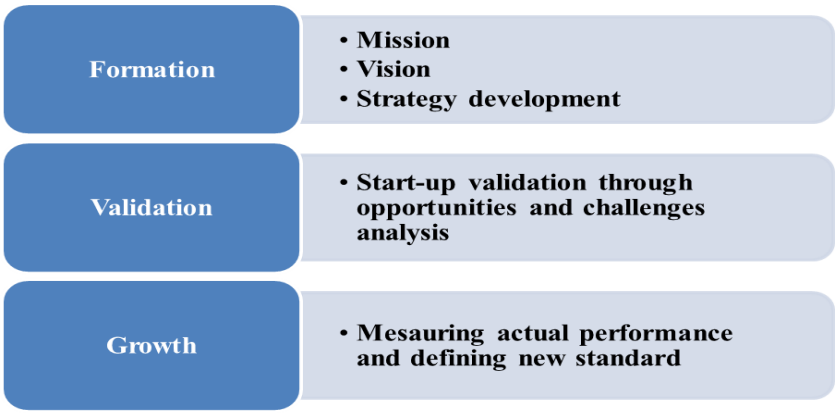

Figure 1: Stages of Startup Development

GROWTH OF START-UP BUSINESS THROUGH INNOVATION

We get to know about the innovation in all the fields of business, enterprises and start-ups agree that it is required to innovate to compete and to sustain in present dynamic business environment to provide the solutions for the ease of everyone's lives. Everyone uses different definition of innovation in different way to know and implement the innovation all different business circumstances. Innovation has been considered in the field of academia and industry and attracted so many scholars. Innovation can be any new product or service which is being developed to add and increase the value to customers. Innovation cannot be considered valuable until it provides financial returns to the business. There are other points of innovation which observe innovations as any change, newness or update brough for the business related to organizational, societal and technological.

Innovation requires the identification of problems which matter and move through them in a systematic way to provide the stylish solutions. It is apparent to bear in mind that innovation leads to inventions, there could be developments or modification for earlier creations and development which are suitably managed to give customers and make product viable. Innovation is considered any better way or new method to serve the existing industries and markets (Bessant & Tidd, 2015).

It is obvious that innovation is considered as newness to provided solutions, whether they are new or modified products, or only the new ways of performing the things. Innovation is considered more than an idea or invention which involves actual consideration and implementation of ideas. It is necessary to keep in consideration that innovation occurs in all different sections of economy and is not only single choice of business enterprise section.

Innovation is considered as a way of thinking, doing, living and managing the business. The role of senior management becomes essential to foster the leadership and corporate culture for better mindset and to pursue the innovation activities which can be enhanced. It is significant for the businesses to observe the innovation as first priorities and identify the need for better utilization of resources. Various business different in sizes and scope all would experience the need of analysis and from here innovation arises. Innovation will not come randomly, and it requires superior way to formulate the right and conscious plans which would result for the betterment of industry and economy (Rites, 2011). Conscious and hard word is necessary to gain the long-term profit and to sustain the success.

INNOVATION CAPACITY: INHIBITORS AND DRIVERS

It is very necessary to recognize the challenges and drivers which have direct impact on building innovation capabilities.

Inhibitors

Creation of innovation is full of challenges which need to be tackled otherwise they hinder innovation. These challenges can be endogenous or exogenous. The aim to identify the key barriers of innovation is to remove the barriers and transform them into innovation drivers for developing the effective innovation capabilities. Following are the barriers of innovation which must be overcome to be successful in the long run.

i. **Fear of Failure:** This is the biggest reason so that so many firms and individuals don't try to achieve the potential due to fear of failure. There always remain uncertainty whether or not an idea will work. So there always remains need of learning, development and progress.

ii. **Lack of leadership:** Innovation should be led by the top management. It happens so many times that top leaders do not support lower management for building and implementation of strategic ideas.

iii. **Short term thinking:** Most of the organizations believe in short term gains. In the pressure of gaining the success, research and other important things are not considered and hence business don't give long term success.

iv. **Shortage of resources and capacities:** Huge investment is necessary to develop the innovation environment. Limited resources is the biggest hinderance to face the challenges.

v. **Lack of collaboration:** Budgeting and structures always don't support the collaboration among teams.

vi. **Lack of time:** Sometimes on time entry into the dynamic market supports the innovation but if it is not started on right time then its difficult to take advantage of the momentum provided.

vii. **Lack of focus:** If the organization's focus is not clear, then it would not be easy for the organization to focus on that approach which will lead to new products and success.

viii. **Too many ideas but lack of proper delivery to market:** If there are so many ideas with the organizations but if relevant ideas are not present then it would be difficult for the firm to gain the success.

ix. **Absence of clear process:** Lack of clearly defined process would lead to non-development of objectives of an organization.

x. **Lack of urgency:** Because of important modifications of funding landscape and economic environment, it becomes necessary for the achievement of innovation.

Drivers of Innovation

The concept of creating innovations and accomplishing new product achievement has got a great deal of awareness. Although many have examined these impacts in marketing and different fields within management, there has been slight cross-fertilization among fields of research to describe the foundation for this exceptional performance.

New market and fast progressing markets understanding greater growth capability and the environment is more violent, changes in the marketplace occur much quicker, disruptive technologies generate additional opportunities, innovative consumer trends and fresh market needs. The establishment of innovation motivated organic development needs the agreement of two basic mechanisms:

- An original product or service that meets market unmet needs or desires.
- A business model qualified to express the benefit of the innovation to the market and to secure the economic value for the business.

As per innovation leadership study, there are five drivers which directly support the innovation:

i. **Innovation strategy**

An innovation strategy is a proposal utilized by a company to promote developments in technology or service industries, generally by providing money in research and development endeavors. An innovation strategy is vital for firms that want to achieve competitive advantage. An efficient innovation strategy should be inspiring and include a little unique to the service or product being created.

ii. **Create and develop a value augmented innovation ecosystem, powered by the strategy**

It is very much necessary to develop the innovation ecosystem which is based upon the value that is desired by the people. But this value driven process should be guided by the innovation strategy that has been developed earlier to get the enormous market.

iii. **Appreciation of the external environment, to predict future trends and control the strategy**

Knowledge of external environment is very much necessary to find out the right opportunities to capture and to cope with threats which may come in future to stay in the market. Without investigation of external environment, a firm cannot predict the future trends and cannot control the innovation.

iv. **Creation of balance between short- and long-term actions**

It is mandatory to establish the balance between short- and long-term actions so that the organisation can gain the objective with the fulfilment of present and future needs.

v. Connecting with external world with strategy

It is very necessary to go out from the company to connect with right customer, on right time at right place so that company may gain the early benefit of moving in the market.

DIMENSIONS OF INNOVATION MANAGEMENT

There are different factors which affect the development and management of innovation (Malinen, 2006). There are mainly three dimensions: Environment, Capabilities and Value Creation. These all are related to strategic management and leadership criteria. The main objective is value creation for the stakeholders keeping in mind market and customers and relevant environment. These all three dimensions play an important role in managing the innovation. While strategic management gives the vision where need to go and how uncertainties must be handled, and risk must be managed. Capabilities give the knowledge of technical know-how and the resources to achieve the milestone. Environment highlights the external factors like social trends, political factors, economic etc. Innovation is a complicated process due to its nature and being managed by key drivers of business and social environment. Innovation in business deals with managing the innovation that is having a larger scope. The innovations are developed in more and more networks which sets further necessitates of openness and collaboration. These all dimensions provide a base to analyse the business in long run to achieve the long-term success.

Figure 2: Three-Dimensional Model of Innovation Management (Source: (Malinen, 2006)

CONCLUSION

In dynamic market, firms operating in technology-oriented industries are trying hard to increase the growth by innovation to jump on success. Executives and newcomers participate to gain the major share of new businesses prospects. Active capabilities and the procurement of new capabilities is the key to achieving that competition. This is the issue to expert in generating growth. It will influence business accomplishment and prosperity in the short-term. Competition has completely changed the industry to chase the opportunities. The leading companies are developing skills to quickly modify the strategies to adapt and achieve the new heights. Growth can only be achieved through managing different levels of innovation. The process of development and sustaining the innovation cannot be gained unless mission, vision and organization identity is created based on the orientation of innovation. Core competencies would stay with the organization by using different drivers of innovation and developing innovative strategies to face the challenges.

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Automation in Seafood Processing Industry

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Abstract
Advance technologies in various domains have broadened the application horizon of automation to an incredible extent. Highlighting a very recent application area, this chapter presents a comprehensive review of robotics application in seafood processing industry. Automation and the use of robots are enabling technologies in the seafood industry when the goal is reduced production costs and increased product quality. Robots essentially have the potential to transform the processes in seafood processing and handling, packing and food serving. Therefore, recent years witnessed tremendously increased trend of robots deployment in food processing sector. The review reveals that the food serving sector is the new potential area in which ample research opportunities exist by integrating advancements from various technology domains. It is anticipated that wider dissemination of research developments in 'robo-food' will stimulate more collaborations among the research community and contribute to further developments.

Keywords: Automation, Robotics, Seafood processing technology.

Practical Utility: Automation in seafood processing industry.

1.0 Introduction

The automation of manufacturing plants has been actively pursued for more than 50 years. And it will continue to be so, even more aggressively, during the next 50 years. The increased zeal in industrial automation is mainly due to the explosive growth in computer hardware and software technology.

Advancements in various technological domains during the last two decades have transformed 'fiction' robots in reality (Zohaib *et al.,* 2014). Robotics lies in the category of industrial automation (Iqbal *et al.,* 2016). Pressing demands of enhanced productivity have necessitated deployment of robot to automate tasks (Baizid *et al.,* 2015). Today, robots are considered as an integral part of industries. Historically, the population of industrial robots followed increasing trend with the last year setting a new sales record (International Federation of Robotics, 2015). In 2015, sale of 240,000 units marked for the first time, revealed 8% global year-on-year growth. New installations of industrial robots of about 1.3 million are speculated during 2015-2018.

The current level of automation in the food industry has been described as "islands of automation". Nonetheless, the food industry now ranks among the fastest growing segments for plant automation. For example, the food industry is among the top ten in using machine vision technology, a key component in plant automation. However, most systems are isolated, batch-type operations that target a specific task. In order for automation to be successful, it must be integrated into the overall manufacturing system design and provide on-line, continuous control capability.

Food manufacturing and processing factories are now using cost effective automation solutions for higher production volume as compared to conventional processes. As the reliance on manual labor is considered a classical concept now, more preference is given to robotized handling/manufacturing installation. Common examples include; picking, placing, packaging and palletizing applications.

2.0 Why there is a need of automation?

The need to automate industrial processes is driven by several key requirements for competitive success and, in some industries, viability of the manufacturing plants. They can be listed as those needing to improve productivity, product quality, and profitability. This is depicted schematically in Fig. 1.

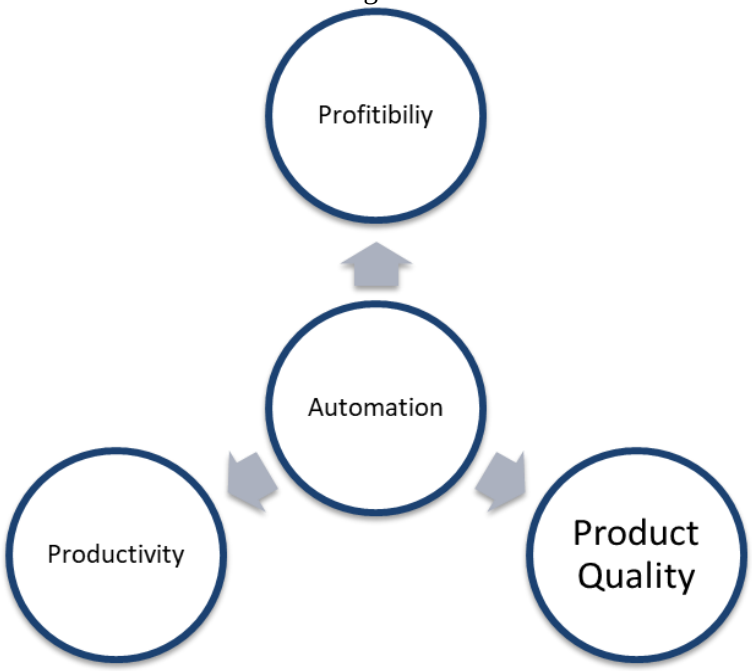

Fig-1: Plant automation can improve productivity, product quality, and profitability.

2.1 Improved Productivity

Plant productivity may be defined as the quantity of end products manufactured per unit of operating parameters – plant size, number of workers, time of operation, etc. Therefore, productivity is directly related to how efficiently the input resources are utilized in translating them into marketable end products. This is possible because automation allows for efficient scheduling of work flow and labor use. The ability to maintain good records and information about past processes can clearly highlight areas that can be targeted for a more efficient allocation of resources. One plant reported a 30 percent increase in plant productivity by using three discrete microprocessor-based controllers designed to perform all continuous loops involving complex, integrated algorithms, valve interlocking, and some sequencing. Similar controls can also be used to optimize formulations, production scheduling, and process modeling.

2.2 Improved Product Quality

Quality assurance is one of the most important goals of any industry. The ability to manufacture high quality products consistently is the basis for success in the highly competitive food industry. High quality products encourage customer loyalty and results in an expanding market share. Quality assurance methods used in the food industry have traditionally involved human visual inspection. Such methods are tedious, laborious, time-consuming, and inconsistent. As plant productivity increased and quality tolerance tightened, it became necessary for the food industry to employ automatic methods for quality assurance and quality control. In fact, this aspect of food manufacture is one of the areas that has received the most attention in terms of automation. Thanks to advances in computer vision technology, substantial changes have been implemented in food plants to facilitate automatic food quality evaluation.

2.3 Improved Profitability

Increased profit is perhaps most important from the perspective of management. Improved profitability not only adds to shareholder value but also allows management to invest strategically in expanding plant operations, increasing product lines, further improving product quality, etc. As

discussed previously, automation helps to improve productivity and product quality. Both of these contribute directly to improved profitability.

Another important factor that makes automation extremely critical for the food industry is the need to comply with food safety and environmental regulatory agencies. Computer-controlled plant operations provide virtually unlimited opportunities to maintain records of all events in plant operation. Furthermore, the ability to collect, store, retrieve, and process data allows plants to identify areas of concern. This information can then readily be used for improved productivity, product quality, and profitability. For example, generating ingredient usage reports helps in active inventory control. Such reports can be generated for daily, weekly, monthly, and yearly use to give a quantitative picture of comparisons necessary for future planning. Smart systems can also monitor and record periodic and transient variations in product variables. An operator can use these records to monitor real time, alter set points, change system configurations, perform testing, etc.

3.0 Seafood processing industries and automation:

Seafood means *food of animals from the sea*, especially fish or sea animals with shells. In this chapter the focus will be on some aspects of automation primarily in processing of fish products. For marketing and sales of seafood products, the main issues are consumers' demands and preferences. Many food products nowadays are ready-made meal solutions instead of traditional meal ingredients, prepared as fresh/chilled, organic and functional foods. To meet new market trends, innovation is often required regarding products, food processing, packaging, distribution channels and eating-out-of-home opportunities. Price and quality are two essential factors to be competitive in the market. Automation and the use of robots are enabling technologies when the goal is reduced production cost and increased product quality. In most cases automation in the food industry enables improved production efficiency and reduced production costs, improves working conditions in food processing factories, enhances hygiene standards, improves yield margins, increases profitability, and eases conformation to legislation pertaining to food processing. Automation and robotics are therefore seen by many enterprises, including those in the seafood sector, as a necessity to secure their future survival.

Seafood consumption is increasing worldwide. The fishing industry harvested about 155 million tons of seafood globally in 2015. That was ten times as much as in 1970, with each person on average eating four times as much sea- food as before (Pauly and Zeller, 2016). Modern people want to eat seafood products that are easy to prepare, of good quality and not too expensive. This justifies enhanced automation use within the seafood industry.

3.1 Challenges and status of adopting automation in seafood processing

One of the most important reasons for increased interest in automating the seafood industry is its cost structure. Seafood processing is highly labor-intensive, with labor costs at anything up to 50 percent of the product cost. Improving productivity and reducing labor costs will therefore have a significant impact on profitability. Much of the manual work in seafood processing requires rapid, repetitive, and monotonous movement and, consequently, low levels of motivation are often found. This leads to poor quality control and a high incidence of industrial accidents. The repetitive nature of the work has resulted in a substantial medical cost to the industry. Automating repetitive tasks will improve quality control and efficiency and reduce the high level of accidents.

One of the most important obstacles in the automation of seafood manufacturing is the biological variation in size, shape, and homogeneity of the raw materials. Some materials (e.g., dairy) lend themselves readily to automatic processing because the raw material (milk) can be handled in bulk. Accordingly, the dairy industry is among the most automated. But materials such as fruits, vegetables, meat, fish etc., need to be handled on a more individual unit basis. This has hampered automation tremendously. Thus, food industry automation requires a level of flexibility uncommon to other mature industries.

Additional problems are due to the lack of complete physical and chemical characterization of foods. Even when complete information is available, the raw material or the end product can change.

Changes in the raw material arise from the introduction of new varieties and/or variations in agronomic conditions. The end product can change due to continual reformulation of product lines to gain market share. Application of computer vision technology is substantially changing the quality evaluation tasks in the food industry.

In addition to a products physical characteristics, factors such as microbiological and biochemical concerns place additional limitations on handling and processing procedures employed. The mechanical, thermal, and sensory properties of food materials also require specific limits on the nature and extent of processing steps. These constraints complicate process automation. Therefore, there are few examples of "hard" automation types that give little or no allowance for variability. For example, automatic equipment for peeling fruit still relies heavily on standard shapes and sizes. Some excellent examples of automation include processing and packaging of fresh eggs and dairy products. Although most baking is done in automatic ovens, baked products are still manually graded and packaged. In the poultry industry, automation is possible as long as the birds are graded into different weight classes. Development in this industry can offer automatic slaughtering, plucking, washing, decapitating, and eviscerating of poultry carcasses at a fairly high rate. Another commercial operation is automatic fish processing. An automated butchering system separates the edible loin portions of transverse tuna slices. Each slice is scanned by a computer vision system, and control signals are transmitted to a cutting arm that then separates the edible portion.

In the fish processing industry, machines are currently available for most of the unit operations. The machine and equipment supplier industry is in continual contact with the fish processing companies, and wishes to improve its machine solutions in order to increase its competitive strength. As a result of this, the machines are getting ever better (quicker, lower energy consumption, higher production output, longer uptime, better product quality, etc.). Nevertheless, we still find that several machines must be fed manually or they may require regular assistance from an operator. To a small extent, the machine suppliers have developed systems which automatically feed the machines. Some automated feeding systems exist, but they are not an everyday sight in the fish processing industry. There can be several reasons why the fish processing industry does not act more quickly in regard to the utilization of new automated technical solutions. One reason is the low profit margin and the small number of employees with high technical skills in fish processing enterprises.

In spite of the challenges mentioned above, we can recognize that the degree of automation in sea-food processing is increasing (Litzenberger, 2009). Present-day fish processing is mainly based on the principles of continuous manufacturing where the fish product moves down a manufacturing line to be processed at specific single operations, both mechanical and manual. Due to a reduction in the cost of elements required for automation, it is now technically feasible to automate tasks in food processing and handling to an increasing extent. We suggest that technology for integration of machine vision and robotics has reached the level of maturity that is required in order to solve grading, inspection and processing tasks, especially in the pelagic fish processing industry. Due to the similarity in size and shape, processing of pelagic fish is often easier than processing fish in general. Also the automation tasks are easier with pelagic fish for the same reasons.

4.0 Benefits of adoption of automation in seafood processing industries:

The most pronounced benefit of implementing gripper solutions in the fish and meat processing industry is the replacement of operators. In an automated handling operation, the object is grasped only once, while in a manual operation objects are handled several times before being placed in a fixed position (e.g. between conveyor belts and cases, and cases and packaging machines). Automated handling will therefore reduce the physical stress on the object and also to a greater extent maintain the object quality. An end-effector designed by hygienic design principles brings no or minimal negative influence to the object's condition, neither physically nor bacteriological.

There are certain benefits that are often referred to as potential benefits from robotic systems:

- Reduced requirements for floor space, for example, use of robots installed in the ceiling and less need of intermediate bearings like cases and boxes.

- Improved efficiency.
- Maintained and improved quality of handling operations.
- The ability to work in cold or hostile environments.
- Increased yield and reduced wastage.
- Increased consistency – the handling operation is carried out in the same way for each cycle.
- Increased flexibility for some operations – the end effector may be able to handle a wide range of objects.

The primary packaging of food is difficult because the speed is higher and the product is probably at its most vulnerable with regard to quality and safety (Wallin, 1997). The reason for the complexity is that the personnel who are currently used to pick and place products are able to carry out several additional tasks:

- inspect for colour, shape, texture, size, type, etc.,
- stop the line if there are downstream problems,
- adapt to new products,
- make decisions based on previous events.

As shown in Fig. 2, the throughput, and the ability to satisfy hygiene requirements and meet legislation are decreased with manual handling and increased by robotic handling. On the other hand, the number of labor intensive processes, final cost of products, and the environmental effect of manual handling, are decreased with robotic handling. This supports the arguments of implementing robotic solutions in fish processing industries when appropriate.

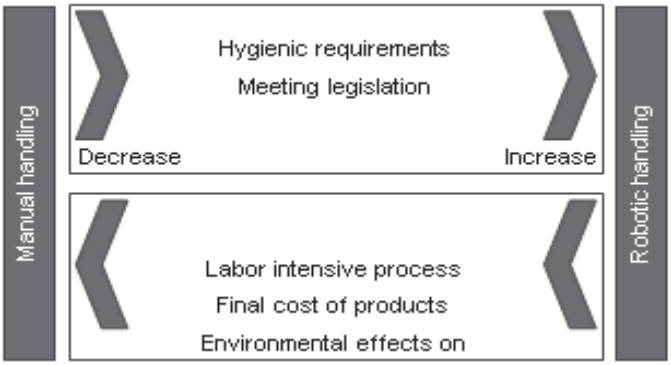

Fig. 2 Requirements for robotic handling versus manual handling of food products.
(Source: Erzincanli and Sharp, 1997a.)

5.0 Tools of Automation:

5.1 Gripping tools

Robotic systems require end-effectors to carry out the required handling tasks. An end-effector for handling products is an interface between the robot or programmable arm and the material or product to be handled. The success or failure of an application depends on how well the end-effectors are designed, developed and implemented (Erzincanli and Sharp, 1997a, 1997b).

The handling of fish objects using gripping tools is a more challenging task than selecting an appropriate robot. Most grippers are developed to handle rigid, three-dimensional objects, but there are also end-effectors developed to handle different categories of objects, from rigid to non-rigid objects. Compared to objects in mechanical industries, where the quality tolerances/limits are within millimeters, fish vary in shape, size and texture. There are great variations in object size and geometry within the same species of fish and within given weight classes. In addition, the raw material quality changes between seasons: the texture is often softer in the spring than the summer/autumn. A problem

that occurs when handling non-rigid materials is that such objects change their geometry under the influence of force. There are different requirements for equipment used in a hygienic high-risk area than in a non-high-risk area. Robots handling wrapped products are normally not working in this high-risk area. These objects have the same shape and often a flat surface suitable for grippers based on principles developed for traditional mechanical and automotive industries.

Different handling operations, in combination with different object shapes and product conditions, set different requirement specifications for the gripping tools even though the raw material is from only one species, such as cod or salmon. Different gripper tool principles are used depending on the object characteristics and the handling task. More gripper tools are needed to increase the use of robots in fish processing industries.

5.2 Machine vision and sensor-related technology

Machine vision is the science that develops the theoretical and algorithmic basis by which useful information about an object or scene can be automatically extracted and analyzed from an observed image, image set, or image sequence. Machine vision is a sector in engineering and is related to computer science, optics, mechanical engineering and industrial automation (Fig. – 3). Vision as a sensor system is based on the use of camera technology. A vision system is a powerful tool for the mapping of the production plant's surroundings and details, because of the large quantity of information which can be read out of a picture in a relatively short period of time.

A vision system includes software for picture analysis, where key information is sorted from the pictures and analyzed. There is also a camera in the system, a signalling device initiating the photographing, and often also a lighting arrangement. After the picture analysis, the resulting information is sent to the control system to act as a basis for actions related to the processing. Vision systems are gaining ever wider ground, also in the food processing industry.

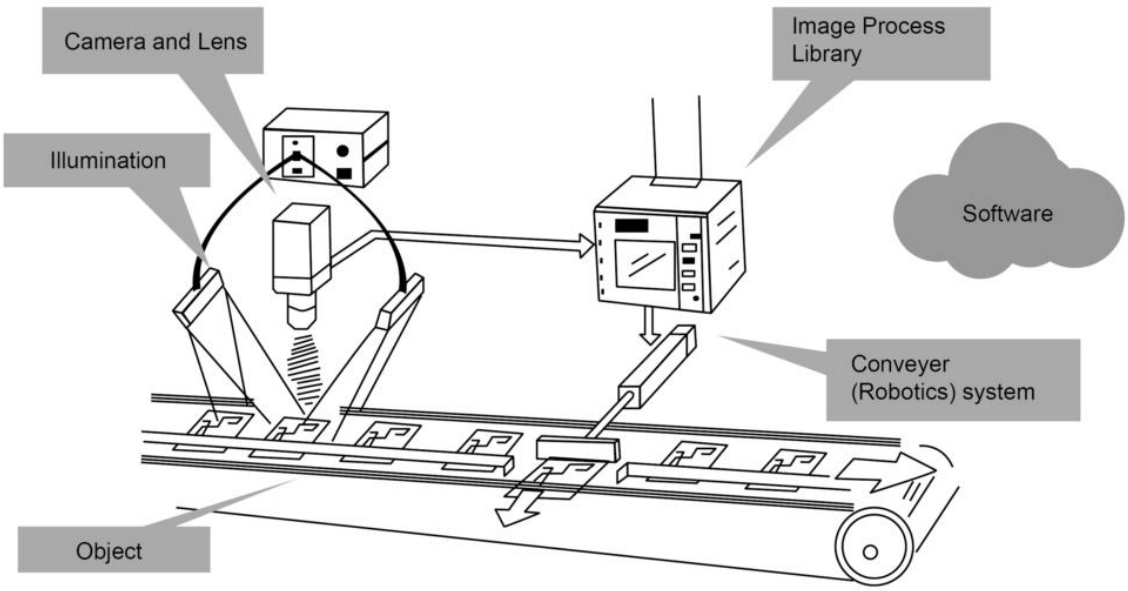

Fig. 3 Illustration of machine vision technology (Source: Wikimedia.org)

Machine vision has been used for sorting fish according to species, grading herring roe, analyzing whole fish and fillets with respect to freshness, estimating brown trout cutlet fat contents by automated colour image analysis, determining the fat and connective tissue amounts in salmon fillets, and sorting of whole Atlantic salmon into 'superior/ordinary' and 'ordinary' quality grades (Misimi, 2007). The development of machine vision algorithms and related technology in recent years has also resulted in the wider utilization of these technologies in food processing applications.

Machine vision applications currently range from simple inspection to vision-guided robotic assembly.

Most practical applications can be grouped into six general categories:

- Gauging – performing precise dimensional measurements.
- Verification – qualitatively ensuring that one or more desired features are present and/or undesired features are absent.
- Flow detection – finding and discriminating unwanted features of unknown size, location, and shape.
- Identification – determining the identity of an object from symbols, including alphanumeric characters.
- Recognition – determining the identity of an object from observed features.
- Locating – determining the location and orientation of an object.

Due to advances in electronics and computer technology, vision systems can be installed in almost all food plants for a cost-effective quality evaluation/control operation. However, vision systems must be carefully designed around the particular characteristics of products being inspected so that they perform reliably under plant conditions. Significant research and analysis is necessary to determine the best method for enhancing and detecting product defects. This means pre-testing a large number of representative products with required defects or features. Recent developments in vision systems include color image processing and three- dimensional (3-D) image processing. These developments offer additional benefits, especially for more challenging inspection tasks.

6.0 Future trends:

Some future trends that will affect automation are briefly described here

6.1 *Pre-rigor processing*: A high degree of automation in the processing plant, and processing lines with high uptime make it easier to perform pre-rigor processing of fish in the available time window. Pre-rigor processing is expected to become more widespread in the future, as the interest in Celsius super fresh fish raw material and simultaneously the time window for distribution and sale of the product increases.

6.2 *Super chilling*: Super chilling is a process where the product's surface temperature is reduced to about 1–1.5 Celsius below freezing point (Stevik *et al.*, 2010). The super-chilling process impedes the quality degradation processes and increases shelf life by several days. This increased shelf life can be used to regulate the stock of goods, or increase the number of days of sale. The greatest challenge is to teach the fish market the advantages of super- chilled fish products.

6.3 *Reconfigurable production lines to meet future market trends*: Since early in the twentieth century, dedicated production lines have been used for mass production. In such lines, transfer line technology, with set tooling and automation, have been used. The goal was to cost-efficiently produce a specific product in huge quantities maintaining an acceptable quality. For the manufacturers this often means the need to produce an increased assortment of products, quick shifts between different products, and varied order sizes. In order to meet with the ever-changing market, manufacturers want more reconfigurable and flexible processing lines. Today, this is only seen to a very limited extent within fish processing companies. Interesting developments regarding these problems are expected in the years to come, and the fish processing plant of the future should take advantage of this development trend.

6.4 *Enclosed production line*: These production line must design for automatic cleaning and disinfecting of process equipment without major disassembly and assembly work. Today it is usual to clean the whole production area at a time. This is not a restriction where enclosed production cells are used. Increasing the degree of automation and robotisation will allow for such cells to perform the processing without personnel being in direct contact with the raw material, thus, under normal operation, eliminating the risk of contamination related to operators. Enclosed production cells will require higher investment at the time of procurement, but will bring advantages that will prove economically beneficial. This is a direction the design of production lines for fresh food stuff can be

expected to take in some instances in the future.

6.5 ***Fully automated processing lines and integrated control systems*****:** Development of fully automated production lines is a challenging task due to the heterogeneous raw material. While automotive and mechanical industries are handling products with exact tolerance levels, the fish processing industries need technical solutions that are able to handle raw materials that differ in shape, size, texture, weight, and surface conditions, even though products are classified into suitable weight classes or product groups.

Implementing automation solutions requires investment in technology, control systems and operators. When increasing the level of automation, the overall target is to reduce the production costs per unit. This economic profit is achieved through several potential benefits, such as increased yield and reduced wastage, improved efficiency, increased output rate, reduced labor turn over, and less difficulty recruiting workers. In spite of many challenges in the seafood sector, the clear trend of more automated production lines in different industry sectors also will be visible in the seafood sector in the future.

6.6 ***Traceability*****:** Traceability refers to full information about every step in a processing chain being accessible, for example in a processing operation with an appertaining distribution process. In recent years the authorities in different countries have introduced legislation which through a demand for systems with traceability provides documentation on the origin and process data, thus enhancing food safety. These systems are made on efficient through the use of modern technology, such as automation, bar codes, RFID technology and IT systems. Documentation on origin and all steps of the processing of seafood will be more and more relevant in the future.

7.0 Conclusion:

The comprehensive state-of-the-art reveals that the domain of automation and robotics has incredibly increased the productivity as compared to the manual production systems. It is highlighted that the seafood processing sector has the largest potential of research and development. Opportunities lie in sensor fusion, machine vision system, robot learning and training so ware solutions, robot structural re-configurability and operation of robots during maintenance. The new ideas are emerging based on the enabling technologies that were unavailable. The urgent requirement is to integrate various sorts of technology areas to realize competitive and novel solutions for seafood processing industry for better future.

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BlueMAGNET: A Bluetooth Proximity Marketing Tool- An Overview

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ABSTRACT
Advertising to Mobile phones using Bluetooth Marketing methodology is one of the new ways to get ahead of your competitors. Bluetooth Marketing reduces costs and increases the return on investment compared to the usual advertising techniques. When using Proximity Marketing via Bluetooth it is possible to target potential customers in a local area like a Club or Conference center and because nearly every person in India has a mobile phone and most of the mobiles are Bluetooth enabled you can send out Calendar events, Address information, Images, Audio or Event Video.

This Paper helps to know about proximity marketing, also it determines how Bluetooth Marketing is being used to promote particular product/services by using Bluetooth technology such as BlueMAGNET software and how it works.

Keywords: Bluetooth, proximity marketing, GSM, NFC.

I. INTRODUCTION

Recently, the advent of a range of new and exciting technologies has facilitated the development of numerous new direct and mobile marketing strategies. The Mobile Marketing Association defines mobile marketing as a 'set of practices that enables organizations to communicate and engage with their audience in an interactive and relevant manner through any mobile device or network' (MMA, 2009). A prominent feature of mobile marketing today is mobile phone marketing, which refers to marketers sending a variety of messages to consumers with mobile phones, usually on an 'opt-in basis' (Winer, 2009). Mobile phone marketing is a multi channel activity consisting of mobile web browsing, audio/video streaming, messaging via SMS (Short Messaging Service) and MMS (Multimedia Messaging Service) and voice calls (Yaniv, 2008).

All of these channels allow personalization and can take user habits and preferences, timing and location into account (Yanis, 2008; Jayawardhena et al., 2009). Consequently, mobile phone marketing has recently received considerable attention in the academic literature, and a number of studies have investigated effectiveness, consumer responses and the antecedents of intentions to use mobile phone marketing (e.g. Nasco and Brunner II, 2008; Ktoridou et al., 2008). The focus of many of these studies is on SMS or MMS marketing.

The authors of this current study are particularly interested in a variant of mobile phone marketing, namely proximity or Bluetooth marketing. This topic has not yet been extensively investigated in the academic literature, even though this relatively new technology 'offers marketers a unique opportunity to reach people in a location specific area with rich content but without the cost and complexity of the mobile networks' SMS and MMS technology' (DMA, 2009). The authors were only focused to know about its practical approach and applications, no study found about the theoretical concept of proximity marketing and BlueMAGNET software.

II. THEORETICAL BACKGROUND

Bluetooth Proximity marketing is the localized wireless distribution of advertising content associated with a particular place. Transmissions can be received by individuals in that location who wish to receive them and have the necessary equipment to do so. Distribution may be via a traditional localized broadcast, or more commonly is specifically targeted to devices known to be in a particular area.

The location of a device may be determined by:

- A cellular phone being in a particular cell
- A Bluetooth or Wi-Fi device being within range of a transmitter.
- An Internet enabled device with GPS enabling it to request localized content from Internet servers.
- A NFC enabled phone can read a RFID chip on a product or media and launch localized content from internet servers.

Communications may be further targeted to specific groups within a given location, for example content in tourist hot spots may only be distributed to devices registered outside the local area. Communications may be both time and place specific, e.g. content at a conference venue may depend on the event in progress. Uses of proximity marketing include distribution of media at concerts, information (web links on local facilities), gaming and social applications, and advertising.

A. Bluetooth-based systems

Bluetooth, a short-range wireless system supported by many mobile devices, is one transmission medium used for proximity marketing. The process of Bluetooth based proximity marketing involves setting up Bluetooth "broadcasting" equipment at a particular location and then sending information which can be text, images, audio or video to Bluetooth enabled devices within range of the broadcast server. Other standard data exchange formats such as V card can also be used.

It used to be the case that due to security fears, or a desire to save battery life, many users keep their Bluetooth devices in OFF mode, or ON but not set to be 'discoverable'. Because of this, often regions where Bluetooth proximity marketing is in operation it is accompanied by advising via traditional media - such as posters, television screens or field marketing teams - suggesting people make their Bluetooth handsets 'discoverable' in order to receive free content - this is often referred to as a "Call-to-Action." A 'discoverable' Bluetooth device within range of the server is automatically sent a message asking if the user would like to receive the free content.

Current mobile phones usually have bluetooth switched ON by default [*citation needed*], and a majority of users now leave bluetooth switched on for easy connection with car kits and headsets.

Some implementations of Bluetooth proximity marketing require users to run Java applications on their phones to enable them to receive content. This has the advantage that only those who choose to will receive content. Others require no handset-side software.

The diversity of mobile phones is huge. Screen sizes and supported file formats varies greatly. To obtain the optimal user experience with Bluetooth Marketing, the Bluetooth system must be able to automatically recognize phone models and deliver the proper content automatically.

Types of Proximity Marketing

B. NFC-based systems

Near Field Communication NFC tags are embedded in the NFC Smart Poster, Smart Product, Smart Book. The tag has a RFID chip with an embedded command. The command can be to open the mobile browser on a given page or offer. Any NFC-enabled phone can activate this tag by placing the device in close proximity. The information can be anything from product details, special accommodation deals, and information on local restaurants.

The German drugstore chain, Budnikowsky, launched the first NFC-enabled Smart Poster in October 2011 which allowed train commuters to tap their phones on the poster to shop and find more information. in November 2011, Atria Books/Simon & Schuster launched the Impulse Economy, the first NFC-enabled Smart Book.

Proximity Marketing Strategy using NFC Technology has been widely adopted in Japan and uses pull rather than push marketing allowing the consumer the choice of where and when they receive marketing messages.

There are a number NFC-enabled phones entering the market spurred by NFC mobile wallet trials globally. NFC wallets include the Google Wallet and ISIS (mobile payment system). While mobile payment is the driver for NFC, proximity marketing is an immediate beneficiary in-market

C. GSM-based systems

GSM 03.41 which defines the Short Message Service - Cell Broadcast (SMS-CB) allows messages (advertising, public information, etc.) to be broadcast to all mobile users in a specified geographical area. Some phones/devices have an option to turn off the receipt of such messages.

There are provisions for "welcome" messages to be sent when entering new countries introducing networks available.

There are also capabilities for messages to be sent by emergency services.

GSM localization accuracy varies depending on location.

In the Philippines, GSM-based proximity broadcast systems are used by select Government Agencies for information dissemination on Government-run community-based programs to take advantage of its reach and popularity. It is also used for commercial service known as Proxima SMS. Philippines has the world's highest traffic of SMS (locally referred to as texting).

Blue water, a super-regional shopping centre in the UK, has a GSM based system supplied by NTL to help its GSM coverage for calls, it also allows each customer with a mobile phone to be tracked though the centre which shops they go into and for how long. The system enables special offer texts to be sent to the phone.

III. OBJECTIVES OF THE RESEARCH

1. To study about proximity Marketing.
2. To know about Bluetooth Marketing and how it works.
3. To know about BlueMAGNET software.

IV. BLUETOOTH MARKETING

Bluetooth Advertising is a method of Mobile marketing that utilizes Bluetooth technology to deliver content such as message, information or advertisement to mobile devices such as Cellular phones or Tablet computer. Bluetooth Advertising can also be received via laptop or PDA.

Bluetooth Advertising is permission based advertising, which means that when a mobile device has received a Bluetooth message, the recipient has the choice to either accept or decline the message. The recipient needs to positively indicate that they wish to receive marketing messages.

While not all Bluetooth enabled mobile devices users leaves their Bluetooth activated, they can interact with a sign to encourage them to turn on their Bluetooth to receive the content. The advertiser is required to explain that those marketing messages may contain information about other companies' products and services, if appropriate. It is highly recommended that the Direct Marketing Associations guidelines are used.

Bluetooth advertising proximity range

The range and accessibility to most Bluetooth Advertising depends on the receiver equipment.

The average range of Bluetooth Advertising is 15 meters to 40 meters for most Bluetooth enabled mobile devices, although with advances in mobile devices technology, this distance is increasing to reach 250 meters or more in nowadays Smart phones, Tablet computers and other mobile devices.

There are two major kinds of Bluetooth Advertising solutions which are Bluetooth Advertising Hardware solutions with embedded scheduling software system along with Bluetooth dongles to transmit content or Bluetooth Advertising Software solutions.

A. Bluetooth advertising content types

Bluetooth Advertising can send file formats like Image files, Ring tone files, vCard, Barcodes, Audio Files, Java Applications, Mobile Applications, Video Files, Text files and theoretically any file format mobile devices can handle.

B. Bluetooth advertising applications

Bluetooth Advertising has many applications to serve the different needs. There are no limits to where Bluetooth Advertising can be used. Wherever Bluetooth enabled devices exist, Bluetooth advertising solutions can exist.

Bluetooth Advertising helps individuals, businesses and organizations implement Proximity Marketing by offering superior technology in the following arenas:

- Broadcast location-based coupons.
- Contextual advertising.
- Localized information.
- Gaming and music.
- Content on demand.
- Specific and targeted campaign.

This form of advertising has been in use for quite some time in Europe, as well as various other overseas locations. There are dozens of companies already in full swing or adding to their advertising mix the promotions using Bluetooth Advertising with many more in the start up phase all over the world.

V. BLUETOOTH MARKETING

Bluetooth technology is now the latest medium for advertising and marketing. ***Bluetooth proximity marketing*** has become all the rage overseas as the newest way to connect with potential or existing customers.

A. How it works?

Imagine you're walking through a mall, and you pass a proximity broadcast station. The key is to have your phone on and in "discoverable" mode. This will allow all possible ads in the area to "hit" your phone – asking if you want to receive free content from the provider. For example, say you're shopping for gym equipment at a specialty shop and they have a proximity marketing station set up. If your phone is in discoverable mode, you'll receive a message asking if you want to receive free content from "ABC Company". Think of it as a virtual billboard or flyer advertisement.

B. Server specifications

- Small, light and can be installed virtually anywhere
- Only requires standard 240 volt power supply
- Range covered is adjustable, depending on different situations, and can be between 10m – 150m. With a help of additional adapter, it can reach almost 30km!
- "Set and forget" after initial installation
- Can send random files to 7 different devices at once
- Can be programmed to recognise and ignore handsets that have already downloaded information previously
- Lottery function
- and much more

C. *Supported contents* A variety of content can be sent via Bluetooth including:

- Pictures (jpg, gif, bmp)
- Sound (mp3, wav, mid)
- Video (avi, 3gp, mpg)
- Contacts (vcf)
- Games, Java applications, etc.

D. Supported devices

Content receiving is possible on any device equipped with Bluetooth.

- A cellular phone being in a particular cell
- A Bluetooth or WiFi device being within range of a transmitter.
- An Internet enabled device with GPS enabling it to request localized content from Internet servers.
- A NFC enabled phone can read a RFID chip on a product or media and launch localized content from internet servers.

VI. EXAMPLES OF BLUETOOTH MARKETING

A. Bars & Nightclubs

In a highly competitive market, why should customers choose your bar, lounge, or nightclub? Perhaps because while walking through a busy city centre or down a main street they receive a message promising an offer for entry or drinks combined with the promise of a great night out. Distributing flyers is highly untargeted and costly - why pay for several people to give out a limited supply of flyers to the few that pick them up (who may then just as quickly discard them), when you could send out an unlimited amount of Bluetooth messages to anyone passing with a Bluetooth-enabled phone? They would still have to agree to accept the message, but in our experience people enjoy receiving messages on their phones. With our experience in design and advertising, we can work with you to translate that initial interest into repeat business.

B. Malls & Shopping Areas

With a stream of potential customers but no guarantee they'll enter your store, why not reach out and invite them in? Sending offers, details about your seasonal lines, coupons, even a random-chance prize promotion, will help ensure people leave the mall or shopping center with your goods in their shopping bags rather than your competitor's.

C. Doctors & Dentists

While your patients wait, why not engage them by offering news and information, even games, in a way that won't disturb the silence and comfort of your waiting room? In a world where healthcare is becoming increasingly commercialized, this also provides a method to start a conversation with patients about health and dental plans.

D. Sport events

Spectators that come on any kind of sport manifestation expect good match to see. Mostly, while wait for beginning, they miss information about team squad, clubs, future plans, etc. Why wouldn’t we also offer them current team table, next metch announcement, or even ad of a product they can buy in sports shop near stadium? Or some drinks they could buy for best entertainment.

E. Concerts

While having fun during concert, give your visitors a pleasure, in gifts, like part of the song, album cover, or singer biography. New CD offer, or next events scheduler could also be interested to send.

F. Cinemas

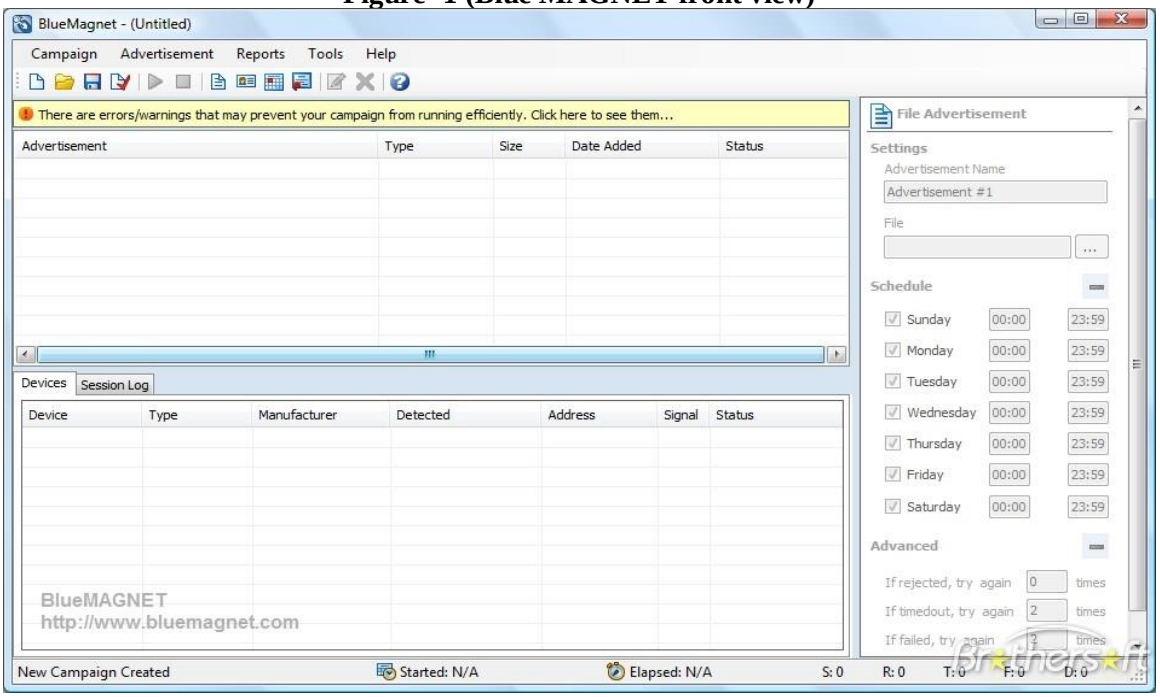
Feeling of joy after watched some good movie loose when people go home. Why wouldn't we change that, and send them home even more happier, with having movie trailer in their phones. Sending next week movie scheduler, and warnings to turn their phones off before movie starts sounds interesting, too. *the rest*

As you can see, abilities are huge. We will mention also some more examples, like using in political parties group, that can send political programmes and next meeting announcement. City halls can inform people about current government work, and plans for the future.

VII. BLUE MAGNET SOFTWARE

BlueMAGNET is the next generation Bluetooth marketing system (Proximity Marketing System). With this piece of software, you can advertise your business and take it to a new level that you couldn't imagine that it's possible.

Figure -1 (Blue MAGNET front view)



Source- http://www.bluemagnet.com/screenshots.html

A. How does BlueMAGNET work?

BlueMAGNET advertising solution relies on Bluetooth advertising (BlueCasting). Studies show that a very high percentage of possible customers now are carrying cell-phones that are Bluetooth enabled (Up to 80%). BlueMAGNET relies on this fact to work as a devoted employee to your business. It will keep monitoring your business area waiting for a new possible customer and when this customer approaches, it will offer him to receive a video promotion, a photo or even your business card!. Many business owners are utilizing this fact to gain more exposure to their business and now you can do the same using BlueMAGNET.

B. Does it really work?

BlueMAGNET provides you with the means to contact any possible customer who's approaching your advertising range. If you sent those customers good inviting messages or promotions, it would definitely work for you and you'll start getting more and more exposure every day, all year long and all for free. It doesn't get any better, does it?

C. BlueMAGNET Features

BlueMAGNET has a lot of features that you can't find in any other product in the market. We did extensive research to learn about all the products available in the market before creating

BlueMAGNET. We're the only Bluetooth marketing system that has all the features that your business will ever need.

Main Features

1. You can use it to advertise your business 24/7 all year long for FREE.
2. BlueMAGNET can publish advertisements in a range of up to 100 meters. (Depending on your Bluetooth® hardware).
3. Publish advertisements simultaneously for up to 7 devices. (Depending on your Bluetooth hardware).
4. Doesn't require any special hardware.
5. Works under Microsoft Windows. This means that any computer can be used to publish your advertisements.
6. The System can be minimized which means that you can use the same computer for other purposes.
7. Requires permission from the device before sending advertisements. No spamming is allowed!
8. Create multiple advertising campaigns.
9. A single campaign can have more than one running advertisement at the same time.
10. Can send different types of advertisements including:-
    - Text
    - Still Images
    - Animated images
    - Audio Files
    - Video Clips
    - Business Cards
    - Calendar Events
    - Java Applications and Games
11. Log file to store all the events while the system is running.
12. Full reports to help you analyze the campaigns performance.
13. Inexpensive advertising system.

Advanced Features

1. The system can run campaigns automatically.
2. Advertisements scheduling is supported.
3. Diagnosis tool to determine if your hardware is not compatible with BlueMAGNET.
4. Blacklist support.
5. Three Modes to control how the advertisements in a campaign are sent.
6. Device Priority option to control which devices should receive the advertisements first.
7. Send Promotions to devices periodically
8. WatchDog Utility that keeps monitoring your system's performance
9. Intelligent System to provide optimization tips that makes your campaign run better
10. Automatic Saving to avoid losing data in case of unexpected shutdown

VIII. CONCLUSION

Through this paper we can say that over the past few years, the market for proximity marketing is growing leaps and bound. Reason being, growing competition across the industries, and increasing emphasis on business intelligence. The increasing adoption of smart phone and the development of analytical tools is a significant factor escalating the market on the global platform.

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Innovation and Development of Digital Finance: A Review on Digital Transformation in Selected Banking & Financial Sector of Raipur City in Chhattisgarh

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Abstract
During last few decades, Raipur City has shifted from Agricultural economy to Service economy. In service sector dominant role is played by the Banking and Financial Industry (BFI). Owing to this shift, BFI Industry has experienced a constant evolution by transforming entire BFI industry landscape with new era of convergence service delivery. Focusing on digital finance, this book provides a discussion on digital finance and explores the impact of digital finance for financial inclusion and financial system stability - an issue which has not been addressed in the literature. At a conceptual level, the discussions also address the benefits and risks of digital finance, digital financial inclusion and financial inclusion. This evolution can be considered as an extended connectivity and increased speed of information processing by introducing new business models and opportunities in BFI. As one of the developing countries, BFI sector in Raipur is looking for an exceptional level of divergence between technology and finance. However to date, there is not much published studies to explain the nature of digital transformation in BFI industry in Raipur. This study proposed to develop digital transformation framework of selected BFI Industry in Raipur based on the diffusion of innovation (DOI) theory, technology-organization-environment (TOE) framework and Actor-network theory (ANT) to conduct the multi-level analysis of the development of Raipur's BFI industry digital transformation. It attempts to create and reveal the process of building and execution of disruptive technology and variety of heterogeneous actors involved in the newly emerging converging industry. Today, the relevance of digital finance and financial inclusion for poverty reduction and economic growth is attracting the attention of policy makers and academics, largely because of the number of issues that persist which if addressed can make digital finance work better for individuals, businesses, governments and the economy. Digital finance and financial inclusion have several benefits to financial services users, digital finance providers, governments and the economy such as increasing access to finance among poor individuals, reducing the cost of financial intermediation for banks and Fintech providers, and increasing aggregate expenditure for governments. This research is a stepping stone in exploring interaction between FinTech and yet unfolding other technology around this context. It also discusses policy implication for Raipur BFI industry, focusing on the expansion of state in fostering the exponential growth of BFI industry within and outside Raipur.

INTRODUCTION

Innovative solutions development with new technological concepts leads to new business model[1]. The emerging ecosystem growth of disruptive innovation changes the directions of many industries leads to business transformation [2]. Digital transformation takes place in every industry and society: banking, financial, manufacturing, medicine, healthcare, telecommunication retail etc. which leads to creativity and innovation of an emerging disruptive digital technology with entirely new business model transforming the competitive landscape [3]. ''In order to succeed in digital transformation, leading companies focus on two complementary activities: reshaping customer value propositions and transforming their operations using digital technologies for greater customer interaction and collaboration'' [4]. Digital transformation of BFI profound significant change in the pattern of how new business model and the mechanism for innovation and create value [3]. This would change the business to adopt innovative business model and position customer at the center of the business process to stay in the market with competitive arena for Banking and Financial industry (BFI) value chain as well as introduce new channel to attract the existing and new customer [2]. The disruptive technology shaping the BFI as "enabler" than deliver the service or product [5]. The researcher aims to define the digital transformation in BFI and further elaborates how FinTech companies are going to be

the disruptors as technology developers and deploy digital technology to cause the disruption. Financial industry developed into banking, wealth management and insurance industry with the liabilities of trust and confident [6]. Delivery of BFI has experienced major change from human led interaction to machine led interaction, in order to leverage the potentiality to improve response time, accuracy, credit scoring and fraud management [7]. This is feasible by introducing artificial intelligence (AI), machine learning, block chain, IOT, big data and social media in to financial services. Digital Transformation is the key driver of creating a more connected world by changing the people's lives and radically improving the business growth [8]. Socioeconomic activities, increased populations and globalization are the key factors for the change of global proportion, motivated to properly choose the digitization path for organizations [9]. Customer experience, competition and regulatory directives are major driving factors for digital transformation. Successful digital transformation leads to sustainable growth and higher profits. Insurance industry in Raipur is expected to be transformed to deliver fast growing demand to integrate their services with various products offered as a service. Technology adaptation become mandatory in order to deliver the world class service such as on-demand insurance coverage using a mobile app, improve the customer experience by offering IoT sensors and drown to collect information from remote locations by lowering the cost of business process [7]. However, adaptation to such technology is a question in all aspects where acceptance by general public and regulatory requirements need to be addressed for successful transformation. Researcher examines the ICT usage and development in BFI industry, on the other hand the intensive application of advanced technologies leads to a digital transition in BFI industry in other part of the world. The researcher takes this literature as a point of departure and puts digital finance strategy building processes in BFI on trial to investigate whether and how digital transformation initiatives transpires organizational culture and technology challenges as a part of transforming banking and finance operation from traditional brick and mortar approach to modern technology adaptation. This will encounter previous studies in Sri Lanka in terms of introducing a digitalization logics perspective. Despite digital transformation initiatives so-called business transformation and technology adaption, the institutional logics perspective promoted me to seek a research gap around the issues of organizational, cultural and management challenges stemming from the co-existence of digital transformation. In order to achieve this broader aim, researcher will analyze the data in the light of DOI and TOE along with their cultural and management ramifications, which will lead to a deeper understanding of level of technology adaptation and digital transformation of BFI in Raipur.

1.1 OBJECTIVE OF THE STUDY

There has been little empirical research done on digital transformation about all disruptive and vast changing processes that are ongoing on BFI sector in Raipur. Researcher discusses about mainstream factor influence on digital transformation in BFI sector in developing country context using Raipur as a case study. Research on adaptation of technology in view of BFI sector, is ready to attract the digital technology. Researcher in this article hopes to show the gap and key challenges on adaptation of technology to build the trust on digitization, benefits of moving to cloud and recommendation for regulatory frameworks alteration to streamline the flow of information as well as flow of physical goods. The analysis resulted distinctive dimension of digital adaptation in to organizational level transformation is timely and highly relevant. Researcher pays more attention to theorizing actual process and formulation of a theory. The pragmatic procedure in the business of "theorizing" then is to intertwine the data being collected with institutional logic perspective in the form of a dialectic process of iteration between the data and theory.

2. RESEARCH METHODOLOGY

This study follows the constructivism paradigm with the mix of narratives and thematic analysis as the qualitative data analysis techniques. During this study researcher primary data through structured interviews, held conservations, make physical observations, and Through secondary data by reviewing available documents, and performed qualitative case studies for turning them into theoretical model. This research is aimed to pursue with qualitative empirical data collected from purposively select five case studies representing a public-sector bank, a public sector regulatory

agency (Central Bank of Raipur), private sector bank, private sector insurance company, and private sector financial company. Conversation was carried out with relevant actors (up to about 2 from each organization) to examine the similarities and differences among digital technology adaptation and their views on the issues of digital transformation. Documentary reviews were undertaken concerning the policies, implementations and practices of digital transformation strategies in respective case organizations. These discussions were conducted by determining, in close collaboration within BFI providers within Raipur in order to present the digitization, digitalization and digital transformation applicable thoughts on ideal researcher should pursue and responsibilities about overcoming the essential issues within the organization. In total seven face-to-face interviews with firm managers and business leaders regarding the business environment in their respective sector and productivity of their firms, including questions relating to awareness and usage of blockchain as a technology in BFI, social media usage for business purpose, current issues and gaps in technology adaptation and effective management of collaterals for loan assets and how do we build trust with new technology.

3. LITERATURE REVIEW

Digital transformation is the unique divergence of data, advanced analytics, and innovation as a cycle, or process that enables organizations through better, more informed decision-making to create value for themselves and society. Digital transformation journey can be categorized in to three major steps: (i). Digitization is an automation of manual process by converting analog streams of information to digital data to deal with automated workflow and processes. According to Gartner's IT Glossary, "Digitization is a process of changing from analog to digital forms". (ii). Digitalization is the "process of employing digital technologies and information to transform business operations" leveraging digitized data and process the way social and economic life restructured around communication and media infrastructure to improve data transparency and process efficiency.

Grossman and Nelson (2016) emphasize that access to finance is not merely a financial or banking service. It is a question of livelihood and empowerment especially for developing nations as it comes across with crucial development sectors that are particularly related to gender and rural community developments and economic resilience. Traditional access to finance is currently unsatisfying in the Arab world as Chehade et.al, (2017) report, 70 % of adults still have no access to formal credit because they are relying on informal financial channels rather than formal financial institutions. This constitutes a great opportunity for the formal financial sector to address a huge unmet need and to investigate diverse ways to achieve this for a range of stakeholders

According to (Gareth et al., 2016) banks in North America, Europe, Asia-Pacific and Latin America will together spend $241bn on IT in 2016, with an overall increase of almost 4% compared with 2015. We can divide these IT investments theoretically in two parts i-e internal and external purposes. The internal purpose we mean the investments for risk management, regulatory, productivity and business models. External purpose IT investments are solely for the digital financial services. The later part is more important from the perspective of a customer who is the user of such services. Thus, the issue of service marketing in general and particularly digital banking services witnessed a substantial growth during the last decade in almost all the countries around the world.

Kemal (2016) [21] explains that digital government-to-person payments include low-income families in society. The transition to electronic payments can combine social inclusion with the government's financial inclusion goals.

Chehade et al (2017) postulate that low financial inclusion in Arab countries has resulted primarily from the low outreach of the formal financial institutions whereas Ozili (2018) believes that the differences in income and education across countries affect the level of financial inclusion and thus, people with high income and high education are more likely to benefit from financial inclusion than those of low income or lower education level. Another reason for exclusion from the formal financial sector is what Ozili (2018) calls "voluntary financial exclusion" where people do not wish to deal with banks or they lack awareness of the benefits of digital financial or they lack education about how to use digital finance. The point here is that huge sectors of the world's poor are excluded from formal

financial services because “they are simply too expensive to deliver through traditional banking models” and thus advantageous digital financial channels are suggested (Grossman and Nelson, 2016)

According to TOE framework “technological organizational and environmental factors influencing the digitalization process.” (iii). Digital transformation is a combination of multiple digitalization project with the intention of “customer driven end to end strategic business transformation that require organization level changes to core competency”. Many scholars defined as opportunities created by digitization in organizational patterns, cultural barriers and transform existing business model, socio-economic cultures, legal and policy measures. In today’s digital world, most organizations are already finding ways to deliver the digital services by offering interactive websites, customer service and improve the customer experience in various channels. However, successful digital transformation could occur depending on strategic objectives of the organization, industry context, peer pressure and expectations of the customers [4]. In Raipur, transformation has been proceeding from 1980 when the commencement of personal computer introduced to offices and home. In addressing digital transformation issues at banking and financial industry, digital technology offers disruptive financial value chain and deploy to cause the disruption while keep the customer at the center of the development process. Impact of internet on digital transformation in a developing country like Raipur is exaggerated and success can be based on the usage of internet from grassroots level.

4. TECHNOLOGY ADAPTATION IN FINANCIAL INDUSTRY

According to technology adaptation model (TAM), customer adaptation process is beyond perception of convenience and perception of technological usefulness as well as convenience on adaptation intention. Evolution of FinTech started with telex network, and to digitization of financial services such as ATM, e-banking and technological development enabled startup and IT firms provides financial services categorized as FinTech. RegTech evolution is based on internal risk management system followed by technology to enhance regulatory compliance and streamline its component process, as a result transformed in to know your customer (KYC) into know your data (KYD) which resulted in data centric mindset. Digital transformation needs to be anchored in a sound human rights framework. This is because as digital tools and web services become more pervasive in our lives, they can either enhance or inhibit the free flow of information and freedom of expression. In this article, researcher analyzes how Raipur’s Digital Transformation policy attend to construct ‘go global’ as a factor in reforming the delivery of BFI sector readiness to attract the global economy with recommendation of the implication for information design, accessibility, and affordability. In emerging SME sector, digital technologies can make a significant cost savings by technology adaptation, accelerate development using technology platform. Trends of digital transformation constitutes of four phases such as technology, business, organization and society. Each of these phases is investigated for its relevance for the successful transformation in this chapter. Digital transformation of BFI sector path and operational execution to be defined based on the existing organizational and societal frameworks in order to realize the value of digitization, analyze the behaviors of objects and forecast about customers, organizations used to integrate Big Data across different applications, IT systems and examine the transaction data for decision making. Using deep data analysis, organizations used to reduce the customer churn by analyzing data from internal data as well as social media and CRM applications. Customer engagements towards service providers can be enhanced via digitalized strategies whilst web-based life is a strategic avenue for such initiations Social Customer Relationship Management (SCRM) in Contemporary Business Era. The framework defines developments of smart factory, and revolutionized business model from technological disruption across the IOT and artificial intelligence based on BFI challenges to track the assets to ensure protection of collaterals. Similarly, with the vehicle, IOT can keep track of the engine condition of the vehicle and send alerts when maintenance is required also need to consider practical deployment and challenges such as driving cultural changes, skills gap among workforce, changing customer expectations, and maximizing return on investment. Most emerging new technology with new services try their luck with the customer without impacting the fundamental business processes. WhatsApp, Viber and Skype are the best example for telecommunication business model innovations which can run on top of the existing telecom technology. Having considered the potential to work closely with customers and enabling

them where ever they live it is a social channel or physical environment combination of Big Data analytics, robotics, artificial intelligence and internet of thing (IOT). However, only few organizations are taking the full advantages of them. Top technological companies tend to have higher technology intensity index compared to the industry average. According to Harvard Business Review study focused on financial service industry, where digital leaders outperform digital laggards in customer loyalty and ultimately in revenue growth. This holds true for small and medium enterprise as well (Roger, 2017). Differentiation & innovation are the driving factors of technology changes in any industry resulted in brand awareness, increase process efficiencies and improve customer experience. Entrance of FinTech organization like Uber, PickMe, YouPay, PayMe and similar mobile payment are the key drivers of digital transformation in financial industry in Raipur city. That said, strategy has been considered by various organizations and respond to the emerging FinTech challenging traditional banking institution with convenient mobile technology. However, the way FinTech causing disruption, top banking executives fear that a quarter of traditional financial services business will be at a risk of taken away by FinTech [7]. FinTech development in BFI

Technology adaptation in financial industry

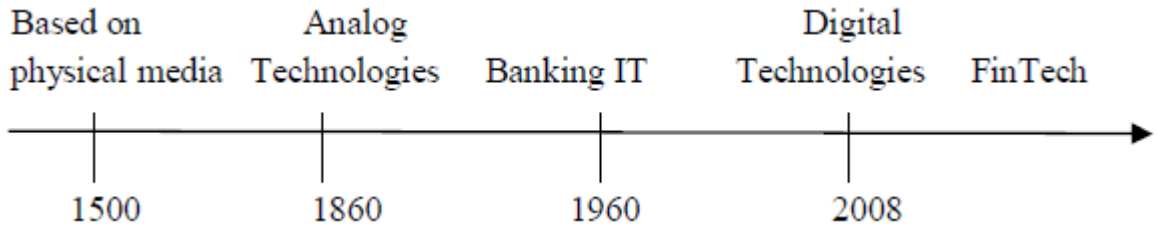

Fig-1: Evolution of financial technologies

provides financial platform starting from bank account creation to track the accounts, transactions, financial planning, manage mortgages and track cash flow using single digital interface supported by an app. Individuals are possessing different level of adaptation and generally noticed that segments of adaptation segregate individuals into five categories as explained in the below figure.

Conceptual framework of Technology adaptation for Digital Transformation of BFI

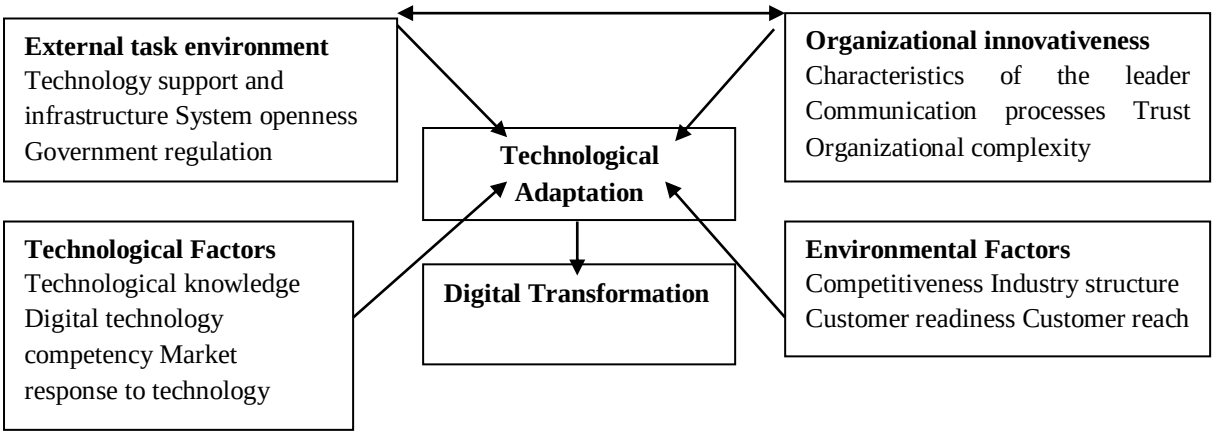

Fig-2: Digital technology adaptation model
Source: (Davis et al., 1989, p.985)

5. CASE REVIEW ON DIGITAL FINANCE

In the discipline of finance for small business, economic analysis suggest that BFI to accelerate the market penetration in middle income sector to generate more business opportunities from micro, small, medium size enterprises and startups. Further illustrates SME sector is vital with major contribution to GPD by providing micro entrepreneurs to micro level financial support inclusive, agro insurance and pensions. Major obstacle for the implementation of above recommendation is, unregulated microfinance institution with high profit low expense and lack of competitiveness

reluctant to adapt to technology for high level of operational efficiency. The emerging SME sector to focus on behavioral changes to the low income rural users to adopt to technological and financial infrastructure as a platform to streamline the microfinance operation. Registered and non-registered financial institutions have an impact on rural economy in Raipur as every small entrepreneur and individuals engage with others on a daily basis. Consequently, cost of managing the finance has significant effect on financial behavior of rural economy, living standards and cost of living. Therefore, developing the financial area in the digital format with the involvements of key players for lending space can significantly contribute to ease of doing business, convenience banking and quality financial service at lower cost. This will have significant impact on economic growth in Sri Lanka.

6. ARGUMENT ON RAIPUR CONTEXT

Digitization is required in all types of markets and organizations adapt with digital changes by carefully identifying the gap in shorter period can survive in the market. The organization with more innovation and globalization has shown more digitization and dictate the digital transformation. The paper examines technology adaptation in the presents of BFI companies in Raipur. The banking sector of Raipur is a prominent scope as a service driven economy, and it requires needful marketing approaches. Technology has broaden the boundaries between online and offline services at rapid pace and traditional way of depositing money and making payment has transformed with the improvement of technology organization captured the new opportunities in the financial market through alternative financial products and services. There are factors influencing the success of BFI industry in Raipur, including raise of private e-commerce companies, government support for innovating the traditional financial system and facilities for payment authorization via the company's of third party web sites. Successful digital transformation in BFI industry is closely linked to the technology development as well as Central Bank of Raipur's policy could make suitable innovative solutions and evolution of FinTech presence in the BFI industry could play significant role in the overall growth of Raipur BFI sector. Until Raipur's technological strategy has been characterized by government intervention in favor of FinTechs presence in direct transaction with customer, Raipur to follow the international platform such as PayPal to depend and follow in the footsteps of developed countries for the cross-border transactions. In this article, researcher made a review literature of IT adaptation model in organizational level, most empirical studies are derived from DOI theory, ANT theory and TOE framework. TOE framework can be used for intra-firm technology adaptation as well as potential of application information system adaptation.

7. DISCUSSION

The ultimate goal of this research is to bring together the evolution of technology phenomenon and to drive the formative elements which may assist to illuminate why FinTech delivers disruptive potential for the financial industry and goes beyond simple linear continuation of current development. According to the COO of a private sector bank, "customer interfacing applications are medium to high level technology adaptation ratio while back end systems are medium level adaptation". Banking model expects radically different changes to the main fundamental functions of the system in such way provide the essential financial services at lower cost. All banks in Raipur are established in different ways and their revenue streams are linked to history and all business models are in the traditional sense. However, if we look at other parts of the world, they don't have any history hence traditional banks as well as non-bank organizations conduct banking business operations. China's social network offers digital content and gaming through platforms such as QQ and WeChat, now they have developed an internet based system to connect customers and merchants without being based on a simple "intermediation" model, similar to the way first generation digital marketplaces. The system capitalizes on all the data, structured and unstructured, that is able to gather and mine, generating intelligence used for profiling best merchant and consumer experience as well as value propositions [6]. In Raipur, smart phone usage is growing and lower cost handsets are available, while cost of data packages is still high compared to rural earning power. In time, data packages also will become more affordable and assist the adoption of BFI digitization. To structure transformation of banking and financial industry, framework can be defined for banking, insurance and regulation at three transformative levels: internal, network and external [27]. Following steps were taken to interview

with stakeholders and summarize the qualitative content analysis. According to CEO of a regulatory agency in Raipur "Few Banks using blockchain technology in few application, however, there should be a bigger initiatives in national approach to use blockchain as a technology to educate the corporates and making users comfortable to use this technology. BFI need to consider practical deployment of IoT to monitor risk for a loan thereby reducing the likelihood of engine condition of the car, crop failure on one hand, while reducing wastage on the other, a bank could track this to ensure protection of collateral. Initiatives like RFID, and NFC for public transport and toll fee payment systems must be done in conjunction with the Central Bank so the solution is robust and properly governed". Privacy regulation alignment to GDPR is a possible way of adopting required privacy for distributed ledger. Public sector bankers revealed "Loans for housing and land require title searches which can be very time consuming and expensive. While most loans are backed by collateral, there are cash flow based loan products. With better credit scoring, hopefully non-asset based lending can grow. An example is Credit Cards which are typically unsecured credit and a high growth product for most banks". Public sector bank CFO revealed that "a strategy similar to market skimming could be used to accelerate adoption, by initially focusing on early adopters and those segments that are more profitable, followed by other segments". Using the concept of a global digital citizen, approaches from more developed regions can also be used in Raipur rather than trying to determine a unique approach. Parallels of this approach in the past were Blue Jeans, Music, etc., that cut across national borders. A private sector and public sector bank heads reveal "for Start-ups where the loan required is small, assistance should be provided to develop standard business case templates to make it easier for a bank to determine credit risk. Organization like Angel Investors is available to assist with developing these business cases. Meantime, the banking industry should be engaged to help develop these templates. Banks also have a responsibility to have staff that understand start-ups and can provide expert credit evaluation. There should be an initiative from state and no state supportive activities for entrepreneurship from a funding and knowledge perspective, setting up funding for fund Investment Company by government to invest in private venture capital funds. New tax policy to be introduced in order to promote innovations and Startup to come forward". Head of IT of FinTech organizations discloses following expectation from Central Bank "to fast track the launch of Sandbox and become comfortable with innovation which will allow innovation to be tested and implemented much faster than at present. Also Fin Techs follow a discipline around payment systems rather than looking at it only as just technology and consumer protection is a foremost consideration".

Table-1: Data sample
Data analysis summery of interview conducted with actors

Company	Interview	Position in the company	Company size (Number of employee	Sector	Data Collection
A	A1	CEO	75	Regulatory Agency	Personal interview; audio recorded and transcribed, duration 45min
B	B1	MD/CEO	2500	Public Sector Banking	Personal Interview, written record, duration 30 min
C	B2	CFO	2500	Public Sector Banking	Personal interview; audio recorded and transcribed, duration 20 min
D	C1	CFO	3000	Public Sector Banking	Personal interview; audio recorded and transcribed, duration 22 min
E	C2	CEO	2200	Public Sector Banking	Personal Interview, written record, duration 25 min
F	D1	COO	500	Private sector Banking	Audio recorded, transcribed duration 55 min

G	E1	CIO	500	Private sector Banking	Audio recorded, transcribed, duration 18 min

8. CONCLUSION

Although the BFI industry has conventionally existed an early adopter and rigorous user of new developments of technology, innovative business models have an incredible impact on current industry dynamics with high competition. Against this background, most companies in the business to design customized, smart, flexible, and cost-efficient financial products as well as services and attempt to succeed new levels of customer centricity. By reviewing the literature, it is evident that advanced technology application leads to digital adaptation and speed of transformation significantly influence the sustainability, profit and market position of the organization. Creativity and innovations are crucial for the survival of the organization along with technology adaptation and digital business strategy by top management and board of directors. Even though Raipur organizations are highly innovative, low creativity leads to average productivity. Less innovation companies will lose to high innovative companies. Also, it is revealed by many scholars that innovation is an alternative to price competition and it can complement many advantages for the customer. Raipur banking sector demands considerable employee related and process related developments. According to the annual report of Central Bank of Raipur, financial sector of Raipur has attributed intensive competition, say between banking and nonbanking institutions. Thus, knowledge related insights are critically important to discuss the avenues of strategizing finance sector of Raipur. Accordingly, researcher intended to propose a framework which aims to provide overview of digital transformation BFI and create a business model. To situate this analysis and uniqueness of this context, researcher surveyed and evaluated Raipur's recent information policy development against international measures. It is revealed by the current study in the field, lot of new insights will be gained throughout the research which will allow us to draw a much better proposition of the business model changes for traditional banks, financial company and insurance companies in the future to sustain in the market. In the context of digital transformation, researcher has found from literature that increasing importance of Big Data, IOT, robotics, cyber security, artificial intelligence Block chain and crypto currency in the context of the BFI transformation. Based on review of literature, business structures will evolve based on the potential to develop value streams offered on the basis of new data processing solutions and organizational implications. In our view, precise roles examine the capacities for BFI and could reveal how they will transform their business with high level of technology adaptation. The future of FinTech solutions will be focused both by innovations on the technology level and by the response of regulators to the new developments. Customers will appreciate technological solutions that affluence usage and moderate transaction cost. Beyond this, agreed the great forces at work in this field and the essential for fast; however well-organized regulatory answers, any theoretical comprehensions on the effect of regulatory processes in the BFI sector will be greatly appreciated.

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Commercialising "Modernism" in Free Trade

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Abstract
Modernism means the innovation. Objective of this work is niceties of the idea of modernization and modernization in organisations intended to elucidate in what way they are executed. Modernism here refers to innovation, novelty, renewal. Modernization as it is acknowledged these days, had ended to be a question linked with solitary in academes, dealings and in fact turned into an idea that springs reputation to the officials. Globalization has resulted to the globalization of world business. Improved market rivalry amongst the nations, nevertheless, countless nations have been challenging in the marketplace. Here, market rivalry and "hi-tech rivalry" and "low-price rivalry as" direct for the upshot. So, talking countrywide, and corporations that cannot be deprived of that the upshot of market rivalry, modernization and novelty management in both advanced and emerging nations, market rivalry developed. Since to have a say and brand modernization to upsurge effectiveness, and is perceived as an explanation. Administered in this work in detail the notion of modernism, modernism in the dimensions of the nationwide are revealed, the reputation for trades that upshots in uniqueness and modernism supervision, commercial modernism and by what method the info is then accomplished by giving illustrations of those cast-off and attempted to enlighten. Here, the term modernism and innovation are used interchangeably.

This study is based on the available literature related on the innovations. To say this study encompasses the available literature to elucidate modernism which refers to the innovations in free trade, innovation management in an organisation, strategies of innovation, innovation procedure, ethos of innovations pioneering corporations, effect of innovations on corporations, value of innovation in companies, factures of innovative companies, promoting innovations in organisation , evolution of innovative structure , outcomes of ethos over innovations in company.

Keywords: Innovation, Innovation Administration, Distinctiveness, Uniqueness, Uniqueness Administration.

INTRODUCTION

Innovation Administration in Organisations and Expansion of the Structure.

Though modernization is a word that has been cast-off recurrently in current ages, it is obvious that here is not any suitable clarification of it in footings of; what the aforementioned refers, in what manner it can be portrayed, then just how it can be promoted. Predominantly, as soon as we ponder the pioneering activities of our companies than can offer competitive dominance in the marketplace, and their patent figures listed in the patent bureaus of our nation, we can perceive further overtly that we as the civilization, state-run and organisations, are at the preparatory stage of the topic. Opening from this idea, this particular work has been introduced targeting at; improving the consciousness regarding modernization, conveying in a viewpoint with esteems to by what method the triumphs of the advanced work of company can be amplified, also bestowing nearly inklings in this reverence.

REVIEW OF LITERATURE

Innovation is widely acknowledged as key to economic development, since it potentially leads to productivity and competitive gains (Abrunhosa &ESa, 2008). There are several definitions of innovation. According to Schumpeter (1983) "innovation is the commercial or industrial application of something new-a new product, process or method of production; a new market or sources of supply; a new form of commercial business or financial organization.

The European Commission defines innovation as the renewal and enlargement of the range of products and services and the associated markets; the establishment of new methods of production, supply and distribution; the introduction of changes in management, work organization, and the working conditions and skills of the work force (CEC, 1995).

In the simple terms, innovation involves the exploitation of new ideas. Innovation is term that may refer to process, an attribute, or an end result. There is a difference between innovation and invention. Innovation should not be equated to invention; an invention may not necessarily lead on to innovation. This distinction is made clear by Freeman (1982) when he note that: "an invention is an idea, a sketch or model for a new or improved device, product, process or system" whereas "an innovation in the economic sense is accomplished only with the first commercial transaction involving the new product, process, system or device.."

Different definitions of innovation included in the literature. "Innovation has been consistently defined as the adoption of idea or behaviour that is new to the organization (Bon & Mustafa, 2013). Thus, innovation does not exclusively result from R&D; it is a multidimensional process, with multiple sources, most of the time coming from complex interactions among individuals, organization and the institutional setting.

The method of innovation is to develop ideas, refine them into a useful form, and bring them to fruition in the market where they will achieve increased efficiencies (Morris, 2008). Innovation definitely creates business value. The value manifest itself in different form, e.g., there could be value from radical innovation leading to entirely new products as well as from incremental innovation leading to improvement in existing products.

Innovation is important because in this knowledge era, many companies see it as a strong contributor and means for generating business and profitable growth that will improve an organization's performance and competitiveness (Potters, 2009). Sustainable and profitable growth in a company requires sustainable innovation activities (Gupta, 2007).

From a micro point of view, innovation is management discipline: it focuses on the organization's mission, searches for unique opportunities, determines whether they fit the organization's strategic direction, defines the measures for success, and continually reassesses opportunities (Gaynor, 2002 in Lin and Chen 2007).

In general, innovation research can be approached from the perspectives of an individual, an organization, and a nation, focusing on personal traits, innovation management, and nation's source of competitiveness, respectively. Scholars from various disciplines have explored innovation from different perspectives. They have enriched this area of study and enable other researchers to gain a better understanding of the nature of innovation (Lin and Chen, 2007).

OBJECTIVES

1. To highlight the innovations in free trade.
2. To highlight innovation management in an organisation.
3. To highlight strategies of innovation.
4. To highlight innovation procedure.
5. To highlight ethos of innovations pioneering corporations and effect of innovations on corporations.
6. To learn the value of innovation in companies and features of innovative companies.
7. To learn promoting innovations in organisation and evolution of innovative structure.

To achieve the mentioned objectives the explanation to the imperative points has been given below:

Innovation Administration in Organisation

Modernization progression is jam-packed of incongruities besides illogicalities. Assimilating these illogicalities is a contest for everyone who desires to be able to modernise; besides team directors assisting the squads besides correspondingly the corporation directors have to discover a method to reunite these elements. The incompatible hopes demand a harmonizing procedure that is exceptionally multifaceted. Consequently, squad front-runner besides corporation directors are compulsory to accomplish the know-how, commercial procedures besides humanoid kindreds in a way to care then

encourage modernization judiciously in addition vigilantly, amongst these illogicalities. (Durna, 2002).

Innovation Stratagem

By way of stratagem expresses the purposes which an organisation needs to range in the upcoming, also as the aforementioned remains a type of blueprints screening in what way to reach here, this is the straightforward module in the modernization supervision and it delivers an intellect of track to modernization. Thus, the foremost phase in an efficacious modernization administration is choosing of a modernization approach that can be straightforwardly learn by the topmost administration of the Corporation. As the Modernization stratagem displays by what means the topmost administration needs to practice the modernization capability of the organisation in command to influence the beset competitive spot besides to advance the presentation, it should response the queries of in what way to spot in the marketplace in addition what premeditated primacies stand? In demand to mature an active modernization stratagem, the establishment desires to; recognize the necessities also opportunities of its workers; recognize the marketplace where it activates in; identify who are investors in addition what expectations are of them; assimilate the requirements of the marketplace, the investors as well as personnel underneath an idea; guarantee that idea is joint by everyone; besides mature the determinations, task and premeditated strategy of the association. And the modernization stratagem must be produced by construing the novelty chances in accord to the necessities specified in these idea, task and purposes. (Elçi, 2007). Here is not at all modernization stratagem that we can reflect accurately faultless, in over-all. Which invention approach will be cast-off principally be fixed on by appropriately measuring the association units, occasions besides terrorizations, in addition to the petitions and requirements of the marketplace and patrons; too each associate of the association, to say whole workers, necessarily remain a fragment of stratagem. (Kanber, 2010).

Innovation Procedure

Numerous works has been completed up until nowadays, in command toward enlightening the appeal of the modernization procedure. The minute we go to a combination of those works: Herzog touched modernization procedure through three phases. New-fangled notions are engendered; besides probability lessons associated with the marketplace, and scientific calculations are undertaken in the initial phase, called as superior phase. In the next phase, the carefully chosen notions are advanced and objectified. Furthermore, here challenging actions besides assessment of diverse changes concerning the purpose of the produce or facility. Lastly, the third phase encompasses the supply of the produce or facility addicted to the marketplace, besides implementation of its comprehensive use (Herzog, 2008). Basadur and Gelade describe the modernization procedure in four phases like, thought or notion development, conceptualization, optimization besides implementation.

Also, conferring to Eric Von Hippel, modernization procedure embraces of four phases like; new-fangled concepts, exploration and growth, model growth in addition to implementation phases. Modernization, refers to the growth in the yield and growing sales as well as marketplace portion, better-quality then rehabilitated supply act, and the growing quantity of the new-fangled goods in their collection; in addition to lessening the charges via shortening in the stages wherever original goods are placed in the marketplace, increasing production , period lessening in the delivery, also a healthier practice of the properties and period. Consequently, modernization ought to be loomed by means of an action that makes the utmost imperative portion of commercial stratagem in addition that takes permanency.

Ethos of Innovation

Modernization entails diverse ethos besides considerate in Corporation. Ethos, remain the main boldness and behaviours which portray the working of corporation or else group besides maximum of the corporation's that do the modernization efficaciously, own few exclusive in addition to mutual characteristics. Therefore, these characteristics, which are considered by their previous then current opinions, notions, behaviour, are well-defined as per the ethos of modernization.

Pioneering Corporations

In footings of the management fiction, the extent of the corporation is well-thought-out as an imperative element to find whether corporation is modernized or not. Nevertheless, there is not at all accord on the reassurance of modernization of neither large scale nor small-scale corporations. Conferring to few the ruling classes, small-scale corporations pursue benefits, related to large-sized corporations, basically in being elastic. Contrast, large-scale corporations have the monetarist soundness to hire the utmost competent practical specialists. These thoughts amid the administration communal displays that here is no applied agenda which regulates the ground-breaking features of corporations (Tekin-Güleş-Öğüt, 2006). Pioneering corporations is a unit which approved an origination throughout the investigation dated. This short-lived explanation may well not be appropriate for all the necessities of strategy and exploration. It would be beneficial to brand further narrow definitions in countless cases, particularly in contrast of modernization amongst segments, unit scope classes and countries. It must too be distinguished that it might be problematic to syndicate longstanding modernization happenings and temporary customer alignments in the similar corporations (Boutellier-Gassmann-Zedtwitz, 2000).

Influence of Innovation on Ground-breaking Corporations

Modernization, as a perception, defines a procedure and an outcome. Modernization, as a procedure, refers the conversion of notion into a merchantable produce or facility, hooked on a new-fangled or upgraded industrial or supply process, or hooked on an innovative common ability method. The similar term defines too the merchantable, new-fangled or better-quality produce, procedure or facility, as established out at the close of the conversion procedure (Gökcek, 2007). The properties of modernizations in commercial act shelter a big zone from the impacts on sales then market portion, to the developments in output and effectiveness. The intercontinental competitiveness besides the variations in entire factor production, which are about of the manufacturing and country-level possessions, and the supply of info and the movement of info through webs, which are about of the firm-level inventions, remain chief (Oslo, 2006).

Worth of Innovation in Corporations

By the side of present-day, the upshot of the practical and methodical discoveries and evolution, the sooner engaging of a quantity of innovative goods in the marketplace, besides the sooner circulation of goods by the holders of the goods in the sooq seeing customer requirements and monetary approaches along with extension of monetary measures, are the foremost fundamentals that group corporations in the direction of modernization (Eren, 2000). Corporations have to recommence own selves repetitively in command to endure in competitive marketplaces. But then, to this conclusion, a minor percentage of tens of modernization accomplished achievement. It is fairly challenging that the win frequency is so low-slung on such an imperative matter. Corporations have to upsurge the efficiency of modernization supervision procedure, in direction to surge the proportion of victory in modernization happenings. (Gökçek, 2007).

Innovation Administration in Corporations

Peter Drucker, which has numerous lessons on modernization, is a well-known, and only person who expressed firstly that modernization must not solitary be measured as an outcome, nonetheless likewise as a procedure. Corporations, which admit that it is inadequate observing at the modernization connected consequences in direction to preserve the ongoing of fruitful modernization administration, must attempt to effort via throughout the procedure with respects to the sustainability of modernization. The modernization administration is forthcoming administration in an intelligence (Aygen, 2006). Modernization in a wider sense, is the determined power pushing companies to do somewhat to strive. In various segments, corporations' sense grateful to mature original goods, to execute the novel procedure procedures and structural systems, to discover innovative marketplaces in direction to endure. The individual, who provides a new-fangled medicinal stratagem, would need to study which ones the advanced sickbays remain. Approving rest on countless factors. The corporation itself besides the directors stand as factors (Gökçek, 2007).

Characteristics of Innovative Establishments

Executive structures besides procedures are of excessive reputation for the establishments in emerging their pioneering style. To be additional advanced, the corporations must adjust its individual structural form and procedures. Together exterior in addition to interior elements must be consider whereas handling this. The corporation segments used by the fruitful pioneering corporations are in contradiction of complication, administration, resemblance and steadiness. Modernized corporations have a tendency to make simpler their personal corporation arrangements and administrative procedures. Working in this mode, the corporation make simple its particular communiqué and procedures whereas dropping the establishment's ordered structure. This will likewise aid to figure the central level administrative structure. (Durna,2002).

Commercialising Innovation in Organisations

Regardless of being recurrently highlighted the rank of modernization, fewer period is being disbursed on in what manner to place into preparation professionally and excellently. Nearby are presently twofold chief difficulties for the corporations in footings of modernization. Primary, issue of dealing modernization plus the procedure of determining it; next, matter of commercialisation modernization efficiently and helping them to the marketplace. Altering advanced movements to monetary and societal worth could be just possible by commercialising successfully. This shows, producing a new-fangled produce, a novel facility or else a novel commercial procedure, cannot be well-thought-out as modernization except being endangered to commercialisation procedure. With this viewpoint, an actual novelty stratagem is dangerous for the corporations in the procedure of commercialisation and manufacturing modernization (Uzkurt, 2010). Doubts in the modernization procedure for the corporations make procedure regulate administration problematic on modernization procedure. Monetary, technical, structural doubts are the foremost ones. It is too tough to foresee the monetary resources, employees and goods in advance throughout the modernization procedure. This would be a handicap for the corporations which doesn't want to suffer perils and are not robust enough financially. While the rate of change of technology forcing organizations to endeavour with the new-fangled know-hows, rising the precession frequency of know-how for the corporations, may create a significant charge. Alternatively, it is too probable that utmost of the workforces might struggle to those modernizations recognized by the corporations throughout the preparation dated. Lastly, the menace of non-acceptance of about of the new-fangled goods and facilities in the marketplace must likewise be observed as noteworthy handicap in the modernization procedure. Whereas the probability of being efficacious for the new goods and amenities is 20-25% yet endure as an element, displays us the scopes of the danger (Uzkurt, 2010). Aforesaid doubts correspondingly carry serious hazards for the corporations at the similar period. Those dangers might turn as a preclusive character in ground-breaking activities for furthermost of the corporations. In order to decrease those doubts, consuming a robust working structure besides ethos is a necessity. Administration and other organizations caring and supervisory character in few zones wherever corporations may not handle, will aid to simplify this procedure further energetic and vigorous.

Guidelines to Upsurge Innovative Presentation of Corporations

Here, attempt to recapitulate the suggestions for ground-breaking strategies in order to advance the state-of-the-art presentation of corporations. Major captions are like advance all-purpose frame strategies and set for modernization, progress monetarist probabilities for modernisation, improving the organizational capability of management. Petite valuations associated to each of the captions are mention below:

Advance All-purpose Set Strategies besides Form for Innovation

In direction to establish appropriate conservational surroundings for unit's rest on modernization, it is vital to appreciate party-political and lawful variations. In addition, party-political and lawful requirements, reinforce the collaboration amongst the companies, inside this procedure it is suggested to care all colleges as it is the situation for nowadays for the hi-tech estates. Growing the number and the superiority of the lines which empower the interchange and collaboration between the colleges, companies and investigation centres is suggested.

Advance Monetarist Probabilities for Modernization Sponsoring specially modernization and Small and Medium Scale firms, is branded as major solitary difficulty in budding of the establishments. To care new-fangled establishments proficient of modernization, innovative strategies are suggested to care corporation investment. Swotting the up-to-date protocols on corporation investment, assisting transformations on investment marketplace, thus the cash of the stock marketplace could be distended.

Erudition Categories of Innovation Administration in Corporations by Means of Squad

Erudition categories by means of squad could be achieved in three ways. The foremost kind could be achieved amid squads, or distributing information with a single person or else a squad and the ultimate technique is acknowledging from the marketplace.

Table 1 – Stratagem of Acknowledging by means of a Squad

KNOW-HOW MARKETPLACE	EXISTING	INNOVATIVE
INNOVATIVE	Market innovation New market model strategy	Interlocutory innovation New risk unit strategy
EXISTING	Step by Step Innovation Cost reduction strategy	Technical innovation Technological entrepreneurship strategy

Source: POLAT, Mustafa; ÖNER, M. Atilla (2000), "Firmalarda Yenilik Yönetimi Teknikleri", Yeditepe Üniversitesi Sosyal Bilimler Enstitüsü, Istanbul

Procedure Modernization besides Segments that Produce Modernization is Actual

Even though implementation of modernizations at innovation administration in the corporations, agreement by its personal set of separate segments must be consider. Since, a modernization, which is pragmatic to a segment throughout modernization procedure might not be functional to alternative segment. Modernization executions contrast from single segment to alternative. Miller and Blais grasped the upshots in the work undertaken by them conferring to work: (a) Habitually produce modernization in electronic machine besides therapeutic business. (b) In cooperation modernization and produce modernization in metallic goods sector, (c) Upgrade modernization in paper unit (d) Procedure in addition with produce modernizations are pragmatic moderately not as much of in wear and investment areas. The outcome that might be realized from here, the segments consuming critical know-hows too take place in the front concerning new-fangled produce progress topic besides supplementary zones generally accomplish procedure-based modernizations that we might term those as per corporation modernization (Polat; Öner, 2000).

Corporation's Executing Innovations

The corporations must continuously execute modernizations in direction to safe competitions benefits. Regarding this objective, they search for the methods to brand the goods and amenities improved, much further beneficial, with developed excellence besides added good-looking and the performs healthier, additional effectual and fruitful that they yield besides afford. Numerous prospects, like altering necessities of clients, fresh client desires and high-tech growths permit those to mature modernization thoughts.

Captivating the Prospects

Corporation must at all times find besides evaluating the prospects for probable modernized concepts. These prospects might cause on or after the modernized notions of the personnel employed in the corporation, shifting necessities of the clients, actions and activities of competing corporations, afresh established know-hows or providers. Or else, the consequences of somewhat investigation and growth effort did by organization or a person in local or overseas or somewhat responsibility of fulfilling with any regulation might produce revolution prospects. Any corporation, which does not seek to mislay its competitive capability is essential to fastening this sort of prospects deprived of wasting a while.

Creating the Premeditated Select

(Gocke, 2010.) Previously assigning a deposit regarding opening a modernization action, the one of utmost imperative nature amongst the chances concerning premeditated facets must be carefully

chosen. The necessities and requirements of clients occurs as the element of vital nature amongst the elements to be well thought-out though this choice. Even the boundless establishments, which consume huge foundations assigned for modernization, cannot brand usage of entire prospects. Foremost victory is electing the prospect provided that tough competition benefits besides transmuting hooked on modernization.

Obtaining Essential Info

Prior opening to apprehend the invention clue, compassing the uppermost capability regarding to deliver strength to face the challenges of the corporation, the essential capitals must be assigned. Regarding this, primarily the info essential in direction to advance the produce, provisions or else procedure ought to be composed. As well in black and white and published info, too attaining unrecorded info is too significant. Retaining a national or overseas professional, experienced concerning the matter, who will execute modernization actions will be approved or engaging that individual as a consultant, getting facility from national or overseas academia or institutions of research and development are amongst the conducts of accomplishing unrecorded info. The aforementioned does not of too much considerable, any way is elected, but then again engrossing the acknowledged info by the corporation and converting into in black and white systems as plentiful as conceivable is vital for persisting the aptitude, efficacy and challenges recompenses. (Gocke, 2010)

Advance of Explanation also Marketing

Subsequent the gathering of info and info foundations compulsory for invention and achieving of it, nowadays it is the shot of execution. At this stage, the everything are sustained till the produce, facility or procedure will take its ultimate style. The progress labours, which are maintained uninterruptedly with the info acknowledged from the marketplace, is constant with advertising of produce and provision or profitable practice of procedure (Gocke, 2010). This stage permits to appraise the accomplishments and disappointments at all stages, fabricating mandatory info and practice of those at healthier supervision of invention procedure. Since the outcome of knowing reproduces to further stages, steadiness of novelty and steadiness of race capability of establishments.

EVOLUTION OF INNOVATION STRUCTURE

Modernization Structure of Novelty Structure

(Freeman, 1982). This is an outline representative of the complete functioning of cooperative revolution procedures and its links. The foremost topic of this structure is regions' -national, regional or local economic performance being depended on interaction both among commercial sector actors and also with other related and supplementary actors, besides the performance of them. Information production, relations amongst establishments, which are components of dispersal then acknowledging, formal guidelines framed by the one who achieved modernization, a joint info structure are the significant issues donating to modernization actions' becoming schematized. Info creation associated with modernization movement besides diffusion occurs at the centre of structure in the subsequent style. For the reason, invention actions, info creation and the communicating and collected processes passed as rest on on official edifice likewise meaningfully regulate the place of academia in the modernization structure. Even though the academy productivities, which transmits, distributes the academia info as academic then skilled aptitudes are supposed as the chief efforts of novelty happenings, the academia has crossed the threshold amid the foremost rudiments of modernization structure with info procedures encompassed in it, in addition university-industrial links those it shares them.

Organizational Culture in Enterprises and Effect of Communication over Innovation

Impact of administrative ethos and administrative communiqué regarding efficiency of corporations is a renowned realism. Aimed at this determination, the upshot of structural ethos over the modernization is elucidated in this portion of work at opening, in addition then the outcome of administrative communiqué over modernization is attempted to be clarified.

Outcome of Structural Ethos over Innovation in Corporations

Modernization is crucial aspect for the corporation's achievements besides individually alteration might generate difficulties also the modernization ethos of corporation theatres a vital character at this

stage. If the modernization ethos of the corporation is accessible and appropriate, the reply period for the variations will be brief and it will be thinkable to permit over modification procedure positively. Next, if period is lengthy, the efficiency, worth and problem-solving possible of modernization procedure will not be fruitful. Not replying in while will reason to unused of capitals. Employed and association of altogether personnel and administration throughout formation of invention ethos allows to touch the worth and efficacy of modernization. If the corporation brands the investigation of its difficulties and describes them as an alternative of beating them, its reworking to modernization will too be so relaxed (Cannarela and Piccioni, 2003). Above and beyond the administrative ethos, the scope of the association might too seem as a significant factor concerning revolution.

In a Universe "Globalization" is in query on one hand and "Local Hindering" is in query on other, accessing marketplaces out their nationwide boundaries and resounding modernization actions is further problematic associating them by great establishments (Su, 2003).

Result of Structural Communiqué over Innovation in Corporations

Throughout implementing the communiqué procedure efficiently, the employees will understand and know the characters and purposes anticipated from those then they will likewise be further conscious of the aim of the association. For instance, care might be offered at the zones, like permitting squad effort, assisting choice making procedures and eliminating hinders amongst sections. It is clear, since of administrative limitations, like the time pressurises over corporations, geographical detachments and rising of scales, it is not imaginable for parties to gratify with outdated communiqué approaches. For of this goal, new-fangled resources and systems, like -CMAC, ECS, Groupware, ITS, VPN acquired the position of direct communiqué. Consequently, the character of organizational statement in structural accomplishment has improved through method. (Berry and Laudon, 2006).

INFERENCE AND PROPOSITIONS

Modernization embraces countless position within for the corporations about delivering benefits at competition with performing the part of a benefit delivering tool in current ages also its theoretical appearance. Since, it is conceivable to yield alike goods and services with nowadays know-how and likewise advertising and circulation networks commenced to display resemblances to respectively in an emerging world. Countless corporations decide on the prerequisite of client attainment and delivering constant client gratification apart from this. In addition, the countless goods and nations donating in global exchange has progressively augmented in current ages and the corporations has arrived in a penetrating competition to yield dissimilar and novel goods and upsurge the competence and effectiveness. The modernization notion, that would generate cost benefit and support to yield superior quality goods and thus will display its outcome over market competition capacity, has arrived in the awareness zone of corporations. As modernization can be achieved likewise at procedure, association, advertising in produce besides it might be found through great advancement as the outcome of essential philosophies, which were not practiced and established and it can similarly embrace enhancement and progression happenings can be achieved by way of chronological procedures understood one by one. Deviations and progressions generating a worth in direction to be modernized as changed from discovery. The administrative map and procedures consume countless reputation for evolving the ground-breaking features of corporations. The corporations are obligatory to do nearly preparations at approximately maps and events for the determination of creating the aforementioned further pioneering. The elements fashioned by interior and exterior atmosphere must be consider. The corporation constructions cast-off by fruitful advanced enterprises are in contradiction of complication, officialdom, resemblance and steadiness. The advanced corporations aim to shorten their corporation arrangements and officialdom. Consequently, whereas these corporations are declining the size of their ordered structures, they too abridge the corporation communiqué and measures. With the help of this, the character of mid administration is redesigned. Modernization develops the rudimentary basis for various corporations and societies concerning matters, like monetary progress and growing societal wellbeing. The established nations in universe have continuously got advantage from technical novelty then they yet perform it. Besides modernization carries opposition supremacy and rewards concerning corporations. Administration of modernization is a procedure necessitating for exertion and upkeep. Subsequently, the prospects and

terrorizations ought to be evaluated in a fine way and a well-organized modernization stratagem ought to be known. More significantly, is constructing a suitable modernization ethos in the corporation, which is easy-going, can bear hazards, honour the victories, shopper based, and exposed to know and inside unremitting communiqué and info flow is essential. Expressly, information flow and assistance offer prospect for responses amid the artists in modernization system and advance of modernization happenings, which is further imperative.

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A Rational Analysis of Digital Intelligence in Boosting International Trade

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There is a rising trend in the use of modern technologies in every sector of the economy. It is also affecting the international business all around the world. This presents a completely new international economic order, challenging for a legal, commercial and international trade norms and system, which are designed to facilitate tangible as well as non tangible cross-border transaction. The trade itself is adequately considered in all government policy so much so that international organizations seek to promote trade, investment and greater cooperation on a larger platform, at much larger pace than what the countries can do themselves. The technological revolution has reached around the world, with important consequences for business, government, and all the market stakeholders. Computer-aided design, telecommunications, and other developments are allowing small players to compete with traditional giants in manufacturing and other fields like logistics and supply chain.

The trade in earlier times reflects the ongoing march of new technological innovations. We all know that after the second Industrial Revolution, the introduction of steamships and railroads changed the economics of trading across national borders. Likewise, the digital revolution of the 1990s and early 2000s enabled companies to interact with far-flung suppliers and customers (Baldwin 2016). Global value chains existed before the internet, but this further enabled fragmented and distant line of production by vastly improving coordination and communication costs. As India and other developing countries of the world began participating in these emerging trends of production and related activities, trade flows soared and stretched around the world not halting till today.

Today the next generation of technologies is reshaping trade flows and global value chains again. But unlike the previous ICT revolution, these innovations will have a more varied and complex effect on trade in the years ahead. Some advances, like digital platforms and the Internet of Things will continue to reduce manufacturing, transaction and logistics costs, thereby boosting trade. Studies have found that use of technology is exponentially growing the business in number of ways than few.

International Trade comprises of two fundamental line of activities The Manufacturing and The Supply Chain Management. Technological disruptions have impacted both these areas in a positive manner boosting the very base of this economic growth trajectory.

Technological Disruptions as a powerful growth trajectory

With the increasing use of technology, companies are introducing high-tech platforms to render faster and better services in every sphere of business. In efforts to beat the competition in the international areas, business houses are exploring untapped niches to entice more off shore markets.

Since industries are changing globally, a series of setbacks have been faced by the secondary as well as the tertiary sector, essentially manufacturing and Logistics businesses. The intrusion of digitalization has led to these changes in their overall industry.

The manufacturing sector, also known as secondary sector, processes raw materials into new products which are ultimately enjoyed by consumers. Similar to other industries, the manufacturing industry is also affected by the industrial changes that are taking place rapidly. These changes are adversely affecting the manufacturing industry and the causes of these changes are excessive global competition, the dearth of required energy, lack of skilled labour, complex supply chain, intricate global sourcing environment, increased focus on customization, thus putting pressure on the reconfiguration of software, decreased batch runs among small manufactures which, ultimately, reduces lift out for manufactures. Similar conditions are being faced in the logistics industry also.

To overcome these challenges, the manufacturing as well service sector needs to adopt new technology innovations. By doing so, business operations will surge and improve in their respective businesses.

Technological Innovations in Manufacturing

To improve the production line, the manufactures can employ varied kinds of technology tools. Popular technologies such as cloud computing, artificial intelligence and augmented reality can upgrade any average manufacturing business and further, automate it. Besides the aforementioned software and tools, another array of tools is available in the market, which can improve the quality of manufactured goods and meanwhile, decrease the cost of production for the manufacturing firm.

1. Total Lifetime Value Calculator i.e. TLVC: Generative designs are changing. It is becoming intricate for manufacturers, vendors and other sources in the manufacturing chain to compare savings and expenses while applying generative designs in different deployment strategies. Now the manufacturers, as well as other participants in the manufacturing industry, can contrast strategies and then narrow down the best ones to deploy generative designs.

2. Additive Manufacturing i.e. AM: This is the new technology that will be turning helpful for manufactures in the offing. Essentially, it is called the standard form for applications in technology. For generating AM, objects from 3D models need to be assembled and meanwhile, subtractive technology is avoided. Now manufacturing businesses can view positive impacts in the operations and have a better insight into the industry. Further, it changes the very nature of PLM.

Additive manufacturing (3D printing) could also influence future trade flows. Most experts believe it will not replace mass production over the next decade; its cost, speed, and quality are still limitations. But it is gaining traction for prototypes, replacement parts, toys, shoes, and medical devices. Since 3D-printed goods can be produced near the point of use, they would eliminate the need for international shipping (although they may increase data flows as design files are transmitted). While this could reduce trade in some individual products substantially, the drop is unlikely to amount to more than a few percentage points across all manufactured goods by 2030. In some cases, additive manufacturing could even spur trade by enabling customization.

3. Digital Factory Data: By employing digital factory data in the manufacturing unit, a manufacturer will be able to test how the increase in data will change revenue flow in networking services and connectivity. Further, the businessman can see the impact of data in other segments areas like analytics, manufacturing platforms, security services and professional services.

4. Autonomy Solution Provider i.e. ASP: ASP is essentially a sub-division of technology which renders mobility solutions and navigation to various vehicles. By employing ASPs, the manufacturing units can focus and develop various things such as machine vision, artificial intelligence, sensor fusion and so on. In the later stage, companies can add the aforementioned components across various platforms. With this addition, ASPs separate retrofitted components from mobile root providers.

These tools can raise the production line of the manufacturing business and further deploy them with necessary components to adapt digitized transformation.

Technological Innovations in International Logistics

From efficient transport management system to data analytics, cloud computing, Internet-of-Things and enterprise mobility solutions, post 2015 has seen much more in the logistics industry. 2021 is going to be the year where technological advancements will take logistics & supply chain industry to the next level. Technology is being used to provide faster and reliable delivery services. Consumers are demanding faster logistics with more options. It has become essential for the service providers to use technological innovations to utilize maximum space, manpower, warehouses, vehicles etc. with control on wastage & fuel charges. Companies trading across borders often lose time and money to customs processing or delays in international shipments and payments. But a number of new technologies can ease these frictions. Logistics technologies continue to improve.

Some of the technological innovations and advancements which are going to shape the entire concept of logistics are as below:

Data Analytics: The amount of data generating per day is extremely high & is growing at an alarming rate. Big Data is the process of evaluating a large amount of data to uncover hidden patterns, market trends, customer preferences, competitor insights & other useful market insights. It's a real challenge for any business to capture & use the data in an optimized manner. Hence there is an opportunity for visionary business owners. The biggest competitive advantage a company can gain if they are able to capitalize on the data is to analyse it & get insights to refine business strategies. Now most of the logistic companies use technology to pull data from the database with the help of programming. Most of the data pertains to the industry insights, consumer buying trends, competitor strategies etc. Applications could be used to get such hidden data, without much human involvement.

There are many projects initiated by logistic companies in order to use big data properly. In the year after 2015, industry was expecting real time data gathering and in-time analysis using the spark on Hadoop and related technologies. Data Science & Engineering, Machine Learning, Data Analytics, Deep Learning, Predictive Analytics etc. will be the future trend to be applied on collected data to get insights and reports useful for business owners to align business strategies. Data-Driven reports help on the work volume analysis, fuel management, web campaigns, government taxation, warehouse management etc.

In Big Data way, logistic companies are getting a lot of benefits. Operation optimization, performance management, daily planned & actual delivery calculation, field service, hub management and utilization, resource engagements are few to name. The innovative technology has allowed logistic companies to implement service strategies which could help us to get a faster service opportunity. Now the delivery man will schedule deliveries keeping the total number of orders, vehicle capacity, availability and the delivery time slots given to the customers.

Transportation Management System: Transportation Management System is not new software, but this software is transforming every year with advanced technologies. The evolution of cloud computing, Software-as-a-Service has changed the way logistic companies work. Small & Medium Scale companies are using technology on pay per use model. With a very less investment, logistic companies are managing and controlling their entire business operations. TMS is powered with many innovative features & expected to touch new heights of innovation in coming years. Warehouse management, labour management, goods management, fuel management, route optimization, and capacity utilization are some of the most important modules.

Autonomous Vehicles: Companies like Google, Intel and few others are working in collaboration with few automobile giants in giving the final touch to autonomous vehicles. Amazon has already announced that they are going to use drones to deliver products within an hour. Looks like a dream, but this is going to happen very soon. If autonomous vehicles are set to take care of logistic, then imagine the speed of the delivery. Though machines can't match human intelligence, but technical innovations combined with human intelligence could bring much better results. Autonomous vehicles are minimizing the delivery time, damage chances, as well as they are utilizing the entire space for the shipment. Overall it is reducing a lot of costs.

The Mobility Way: Mobility solutions are the most used & reliable technological innovations in the last decade. It helps businesses to monitor the real-time operations & get real-time data. Mobile applications enabled small businesses to complete in a much larger market space. Mobile apps has reduced the gap between service providers & consumers and made the communication very easy.

Various mobile applications have been developed to help logistic companies to extend their business to mobile devices. These applications are running on various devices like mobile, tablets, PCs etc. to offer functionalities like real-time information capture, real-time messaging, order dispatching, route tracking, warehouse management etc. Overall system and technology helps to monitor & report the condition of the vehicle, vehicle positioning using GPS, vehicle safety, and also allows the manager to communicate with the driver.

Internet of Nano Things (IoT): One secondary research shows, 24% of the logistic companies have IoT plans in their next 1 year, 40% are already using, 67% are planning an IoT strategy. Logistic industry is one of the first to adopt IoT compared to other industries. Smart logistics operations show faster ROI and reduce management complexities. Enterprises are accelerating productivity, profitability and operations with solutions designed with the help of IoT. Enterprise can connect all devices to a centralized network to capture & share data. IoT & Big Data always work together. ***IoT*** is been used for fleet management, warehouse management, an end to end process visibility. In coming year IoT is going to be Nano and will capture every single possible data.

The Internet of Things can track shipments in real time, while AI can route trucks based on current road conditions. Automated document processing can speed goods through customs. Some companies are developing fleets of self-driving trucks, and a number of ports worldwide have introduced automated cranes and guided vehicles that can unload, stack, and reload containers faster and with fewer errors. Blockchain has potential for tracking shipments and triggering faster automated payments, although it will be some time before its scalability and success in trade can be determined.

Augmented Reality: We all create our world around us through our perception, and our perception is influenced by the reality. Augmented reality allows a more enhanced view of the real world. *Augmented reality* (AR) is a live, direct or indirect, view of a physical, real-world environment whose elements are augmented by computer-generated sensory input such as sound, video, graphics or GPS data. A reality which is digitally manageable as well as interactive is the need of the hour.

AR is been used for order picking process, delivery and warehouse management. Scene recognition and augmented reality allow a camera operating system to find a product in the warehouse and move it to the right vehicle for faster delivery. All these information can be shown in an AR device. The same concept can be used for delivery boys to find the right product from the vehicle for delivery. This is on the cards for future faster logistic services. In future AR can be used to identify the damaged product in from the warehouse, even can be used to identify what part of the product is damage. AR helps to anticipate and respond to any deviation from planned processes. Hundreds of sensors continually capture information in the real world and send alerts for humans to make the better decision.

AR is non-tangible and imaginary technology, which can be placed in the physical part of business. With the use of AR, businesses can provide their customers a service experience with which is more standardize and quicker.

Digital platforms : connect buyers and sellers directly, lowering the costs of search and coordination (McAfee and Brynjolfsson 2017). They have created seamless global marketplaces in areas such as e-commerce, payments, travel, learning, and labour services – and there is room for much more growth. E-commerce could spur some $1.3 trillion to $2.1 trillion in incremental trade by 2030, boosting trade in manufactured goods by 6–10%. This will include many small businesses that can directly reach customers in other countries. EBay, Alibaba, Amazon, Jumia and other online marketplaces are enabling the rise of ‘micro-multinationals’ – today, startups tap global talent, finance, and consumers from day one (McKinsey Global Institute 2016).

Conclusion

If we calculate, these group of technologies could reduce shipping and customs processing times by 16–28%. The academic literature finds that a 1% reduction in trade costs can result in a 0.4% increase in trade flows (Djankov et al. 2010, Hausman et al. 2013). Based on these figures, these technologies together could potentially boost overall trade by around 12 % by 2030 compared to the baseline, worth more than $5 trillion in annual trade. Automation and additive manufacturing change production processes and the relative importance of inputs, and may reduce goods trade.

The diffusion of automation and artificial intelligence technologies suggests that multiple industries are experiencing a profound shift in the importance of capital versus labour. The growing adoption of automation and AI in manufacturing makes labour costs less important and other factors – such as proximity to consumer markets, access to resources, workforce skills, and infrastructure quality add to its increased important.

In addition to affecting the trade in manufactured goods, automation will influence trade in services. Many call centre and help desk services are already 'staffed' by virtual agents, which are adding natural language processing abilities and beginning to handle a wider range of tasks. This is leading some companies to automate customer support and back-office services rather than offshoring them. This trend could reduce the $160 billion global market for business process outsourcing, now one of the most heavily traded service sectors.

Overall, we estimate that automation, AI, and additive manufacturing could collectively reduce global goods trade by up to 10% by 2030, as compared to the baseline, or $5 trillion in annual trade flows. However, this reflects only the direct impact of these technologies on enabling production closer to end consumers in advanced economies. It is also possible that these technologies could lead to near shoring and localization of trade instead of reshoring in advanced economies, impacting both modes of transportation (e.g. overland and air cargo replacing container shipping) and trade corridors. We are aware of the fact that intra-regional trade has grown faster than inter-regional trade since 2013, a trend seen worldwide but particularly notable as regional value chains are developed in Asia and in the EU28. As technology transforms some products and services, it will also alter the content and volume of trade flows. Some of these may have unexpected consequences for trade flows.

Despite the increased trade tensions, rise of nationalism, and well-documented slowdown in global goods trade, globalisation is not in retreat (Lund and Tyson 2018). Rather it is entering a new chapter that is being driven by the flows of information and data, as well as technological changes reshaping industry's manufacturing as well as value chain process.

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Information and Communication Technology an Enabler for Rural Tourism Industry

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Abstract
Tourism is one of the such industry which results in large benefits for the social, economic, natural and cultural environments of the region where it takes place. For developing countries like India, it is also one of the prime income generators. India is an agrarian economy and maximum people lives in rural area and thrive their livelihood from agriculture. Rural Tourism could be the best alternative of income generation for the rural population. Rural locations seem to be an ideal place for tourists to relax and also provide various opportunities to the rural youths. Tourism product consists of a variety of elements in form of a package to meets the various needs of tourists from departure from his residence to the destination and back again to the place of origin. There are certain challenges, reservations and hiccups concerning the access, adoption, growth, and implementation of the Information and communication technology in rural tourism. This paper throws light on the need and benefits of Rural Tourism to the Indian economy and the rural population and it emphasizes the role of ICT in Rural Tourism. The chapter explains the role and applications of ICT which are useful in promoting a rural tourism product in rural, urban and global market. The paper discusses the challenges in the implementation of ICT in rural tourism sector.

Keywords: Rural Tourism, ICT, Benefits, Challenges

Introduction

Indian Tourism Industry has grown phenomenally and outperformed even the manufacturing sector and various other fast growing services sector. India received 23.3 million foreign and domestic tourists in 2016.Tourism in India is quite economically important and is growing rapidly. According to The World Travel &Tourism Council , Tourism generated ₹15.24lakh crore (US$230 billion) or 9.4% of the nation's GDP in 2017 and supported 41.622 million jobs, 8% of its total employment. Tourism sector in India is predicted to grow at an annual rate of 6.9% to ₹32.05 lakh crore (US$480 billion) by 2028 (9.9% of GDP).India's tourism sector got a major boost in 2017 with number of foreign tourist arrivals crossing the 10 million mark.This helped India to jump 25 places to 40th position on the Tourism Competitiveness Index, 2017 from 65th position on the list in 2013out of 136 countries overall. The report ranked India's tourism sector 10th out of 136 countries on price competitiveness. Report also mentioned that India has quite good air transport (ranked 32nd), and reasonable ground transport infrastructure (ranked 29th). The country also scored high on natural and cultural resources (ranked 9th).The World Tourism Organization reported that India's receipts from tourism during 2012 ranked 16th in the world and 7th among all Asian and Pacific countries.

Tourism is defined as the set of activities of persons travelling to and staying in places outside their usual environment for not more than a consecutive year for various purposes (Goeldner and Ritchie, 2011). Besides Medical tourism, Adventure tourism, Cultural tourism, Pilgrimage tourism etc., rural tourism has gained immense importance since last two decades and has created a niche impact on tourists. Rural tourism is becoming popular in various parts of the world with the growing need for super segmentation of the tourism market (Negi, 1990; Zurick 1992). Rural Tourism is playing a significant role in the global scenario and has the potential to become equally important in rural India. Such form of tourism not only provides rewarding and individualized holiday products to tourists by ensuring absolute peace from monotonous urban city life and its traffic, noise and pollution but also it generates employment for the local community, diversifies the economy and creates regional

employment. Although the concept is a relatively new one ; it can definitely be useful if it is nurtured in a country like India, where almost 68.84% population reside in 6, 38,000 villages and where most of the rural population is mainly dependent in agricultural activities and looking for alternative opportunities.

Rural and Traditions Centred Tourism

Traditions centred tourism allows tourists to discover the traditions of other people. It takes various forms such as rural tourism, agro-tourism, village tourism, and ethnic tourism. According to Aylward (2009), rural tourism can be defined as tourism which takes place in rural areas and which uses rural lifestyles as a tourism attraction. Rural tourism is usually associated with rural development because it has strong linkages to rural resources. On the other hand, agro-tourists watch how traditional agriculture or farming practices take place without disturbing the ecosystem or the productivity of the host area. Village tourism allows tourists to live in a village in order to experience or share the village life. Ethnic tourism consists of visiting exotic people for the purpose of observing their cultural expressions and lifestyles. For example, one may travel to the isolated hill tribes of Assam in India, with the aim of visiting their native homes, attending their traditional ceremonies and dances, and possibly participating in their religious rituals. (Turtureanu, 2005).

According to Farmiki (2012), rural tourism is tourism that takes place in rural areas, and which involves small-scale development even when rural tourists are interacting with nature and with local traditional cultures.These businesses usually start with a low capital base, and most of them are family owned with their owners usually working as managers.

According to a Ministry of Tourism policy paper, rural tourism can be defined as a form of tourism that showcases rural life, art, culture and heritage at rural locations, thereby benefiting the local community economically and socially as well as enabling interaction between the tourists and the locals for a more enriching tourism experience.

It was the 'National Tourism Development Policy' 2002 that for the first time gave impetus to rural tourism industry in India.Rural tourism brings a new dimension to the sustainable development concept. This form of tourism is a new entrant in the Indian tourism Industry (Aref et al.,2009).

The rural tourism in India attracts the tourists for discovering famous historical sites as well as the domestic rural markets. The tourists are demanding to experience the rural lifestyle, and spend weekends in rural India, away from bustling city life. India is known for its unique history and heritage and dialects that frequently change from one village to another. The emerging as well as well-established start-ups like Grassroutes , Ecologin, India Untraveled, and Travel Another India are playing a significant role in rural tourism.These start-ups have innovative business models and are promoting the prospects of rural communities.

Main Features of Rural Tourism

- The tourism activity takes place in the country side
- Community participation is prerequisite.
- Rural locations are ideal for relaxation and rejuvenation.
- Desire to escape from the monotony of urban living.
- Over-familiarity and congestion with traditional tourist resorts
- Increasing interest in Outdoor Recreation, Eco-Tourism and Special Interest Tourism.
- Desire to know more about rural India and rural culture, customs and heritages
- Incorporates different forms of tourism and is multi-faceted.
- The architecture of village is promoted by locally provided accommodation and ethnic food.

Rural Tourism Benefits

Economic, socio-cultural, and environmental benefits offered to rural areas by rural tourism are numerous. According to the study of Singh et.al. (2016) the major potential benefits of Rural Tourism to the Indian economy and rural population are as follows:

1. Socio-Economic Development- Rural Tourism facilitates the remote and backward areas to be developed with basic infrastructure facilities and provides the host community alternative ways of employment and also helps check migration. It develops a closer relationship between city dwellers and rural communities. It empowers local people and ensure their participation in different decision-making situations. Singh (2010) highlights that village tourism, "stimulates improvements to local transportation, communications, and other basic community infrastructures".

2. Alternative Source of Income-In India about 58% of population is directly or indirectly dependent on traditional agricultural activities to maintain their livelihood. In this regards, rural tourism can be a potential alternative to reduce their over dependency on cultivation and it contributes to the overall economy. This can also boost government revenues and locals can earn good income from the selling of arts and crafts, tips from customers along with their agricultural work.

3. Employment Generation-Haldar (2007) also places emphasis on the immediate or direct new employment opportunities for the locals and on the attraction of foreign exchange. This can create new types of jobs and diversification of employment and products through the creation of new markets for craft and agricultural products.Rural tourism creates a large number of semi-skilled jobs for the local population not only in local hotels and catering trades but also in other fields like transport, retailing etc. Moreover, it ensures revival of traditional arts, crafts, building art etc. and brings marketing opportunity for rural producers to sell their products to the tourists. Rural performers are hired for cultural programs where they can exhibit their talent and earn money.

4. Alternative Business Opportunities-Rural Tourism generates new business opportunities for even those rural businesses, not directly related to tourism through developing close relationships with tourist facilities. For example, a number of tourists love to taste local cuisines of different tourist spots. Therefore any restaurant serving ethnic foods can also attract tourists though many of these restaurants are not directly engaged in rural Tourism.

5. Empowerment of Localities-Rural Tourism cannot be flourished without the involvement of local people in it. Accommodation facilities are being provided by local hotel owners whereas local suppliers supply food and beverages to the local hotels. Local producers produce locally made products as per tourists demand and earn money by selling them in the local market. To entertain tourists, different cultural programmes are organised where local performers exhibit their art and culture through live performances. All such engagement actually empowers the localities.

6. Entrepreneurial opportunities for Rural youth - Rural Tourism is a promising concept in India and its market has immense opportunities for all. The rural tourism industry needs energetic and enthusiastic young people and has amplified career options for these young entrepreneurs.

7. Arts and Crafts Sale-Arts and crafts are the evidence of local culture and heritages of any community. The urban tourists, wherever they go, generally prefer to have a collection of local arts and crafts to make their trip-experience a remembering one. Such trend motivates them to purchase local arts and crafts from the local producers and artists. It also encourages the local community to sell such products in local market. Such practice opens an alternative way of earning and livelihood to the rural people.

8. Environmental Improvement-According to Nagaraju, Chandrashekara (2014), "Environmental improvements such as village paving and traffic regulation schemes, sewage and litter disposal can be assisted by tourism revenues and political pressures from tourism authorities. These are important in retaining existing population and businesses, and in attracting new enterprises and families".

9. Heritage Preservation-Rural Tourism brings a strong sense of emotion in everyone's (both community and tourists) mind to preserve the local culture and heritages to make any place attractive

for the tourists to visit it and also for the host community to live in. People realize that they are the preservers of their cultural and natural property and they start to guard these things by themselves.

Rural Tourism Experiments and Experiences in India

Rural tourism initiatives have been underway and have been promoted and mentored by private owners and tour operators since long. As early as 1980, Rajasthan had heavy inbound traffic which was being run individually and privately. Many royalties opened their palaces or lodges into high-end hotels and resorts. Foreign tourists thronged for a slice from 'royalty life' and Royal treatment. Rural tourism started at this time besides the luxurious, Samode Palace stays, when village huts with attached bath came up. These huts kept the vernacular architecture of the village to merge with the local landscape. They offered comfortable stay to the tourists at affordable prices. The associated rural experiences, interaction with villagers, rural craftsmen and artisans and local cuisine made it a unique experience of a life time.

Endogenous Tourism Project-Rural Tourism Scheme (ETP-RTS) (2003) was started by Ministry of Tourism in 2003 in collaboration with United Nations Development Project (UNDP). The objective of the Project were to promote sustainable rural livelihoods, income generation, employment, gender equality, empowerment of women, youth and marginalized sections of the rural society and their capacity building. The Project was initiated at Sualkuchi in the Brahmaputra basin in the Kamrup District of Assam in 2004 which is famous for silk weaving and recognised as the "Manchester of the East". The project experimented with tourism as an engine of sustainable rural development under Indian conditions (Ministry of Tourism /UNDP, 2008). Tourist sites entirely managed by local communities were used for the first time under the ETP. In 2008 the total income of these sites was slightly over INR 48.7 million with 40% increase in income level of at least 80 families. Today, the local cultural groups are performing at national platforms, the cuisine of Sualkuchi is recognized as one of the best among all the ETP sites in the country, and the villagers are now confident enough to receive tourists from all over the globe. Out of the total of 36 ETP sites, 15 sites are now open for visitors, and approximately 14,000 individuals are involved in these sites.

In Gujarat's Great Rann of Kutch the region's famous salt desert,one canvisit artisan villages and can watch the artisans in action, as well as experience and get an insight into village life. One can stay in mud huts with attached western bathrooms or tents at Hodka's village resort. It's owned and operated by the Village Tourism Committee of the people of Hodka village.

Rural tourism artisans were also brought to the National platform through the Delhi Haat, International Trade Fair, Delhi and Toshali National Craft Mela, Bhuvaneshwar. The Rural Tourism site Aranmula in Kerala got Pacific Asia Travel Association (PATA) Award in 2007.The local artisans engage in traditional crafts such as the Aranmula metal mirror the 'AranmulaKannadi', the mural paintings, the construction of boats which are taken to the river Pampa for the annual Palliyodam boat race or the Snake boat race festival.

Tourists can have a firsthand experience of rural life style, witness the local traditions, customs, ethnic attire, local foods and cuisines in TipamPhakey Village of Naharkatia in Dibrugarh District, Assam .The rural people now consciously conserve natural resources, rural eco system, create and preserve forests since they form the basis of rural income and livelihood. The villagers realise the importance of their 'Tai culture' and they now consciously preserve it and showcase to the world.

169 rural tourism sites have been sanctioned by the Ministry of Tourism in 28 states/UTs of our country in 2011.This brought many accolades and laurels at the International level.

Challenges of Rural Tourism

Singh et al .(2016) highlights the major challenges in rural tourism as follows:

1. Improper Communication Facilities and nascent Stage of Rural Market: Long distance from nearby towns, absence of proper transportation, lack of basic infrastructure, inadequate lodging – fooding ,amusement facilities, poor availability of electricity, telecommunication problems etc. are

major problems in attracting prized consumers (tourists) at many rural sites although those are very much promising in term of the availability of tourism resources.

2. Poor Communication Skill: There is no doubt that communication skill is an essential tool for producers, marketers and suppliers to draw the attention of potential buyers. The difference in languages and lack of basic education are the two basic barriers for the rural marketers. Much of the success of tourism marketing depends on the ability to give warm welcome to the guest, understand the clients demand and to provide right services at right time.

3. Legislation Problem: Generally, owners of licensed accommodation units pay taxes to the government. But it is kind of burden for the poor rural marketers to pay tax at a regular basis as they lack sufficient financial backing and many a time face losses in business because of seasonal demand.

4. Insufficient Financial Support: Most of the rural tourism marketers come from the poor family background and have poor financial support by the local banks or local Government bodies through loan facilities. Therefore, though these marketers have unique business ideas, most of the time because of insufficient fund, inadequate technical knowledge and skill they fail to startup businesses as per their desire.

5. Lack of Trained manpower: The success of rural tourism depends on the quality of hospitality service. But in rural areas, lack of trained human resource is a common issue that affects the tourism and hospitality industry badly. Trained people from urban areas are normally not interested in going to rural areas due to lack of basic infrastructure facilities.

6. Lack of Proper Physical facilities for tourists: Proper drinking water, sufficient electricity, good telecommunication, safety and security, etc. are the few basic needs of a tourist while he or she is visiting any place individually or in a group.

Use of ICT in Tourism

Information and communication technologies are digital technologies that facilitate knowledge acquisition, processing, presentation, and management. Information and Communication Technology includes all communication devices, including radio, television, cellular phones, computer and network hardware, satellite systems and so on, along with the various services and applications associated with them, such as videoconferencing and distance learning.

India has about 462 million internet users now, second only to China. Internet penetration in China and India are 55% and 38.4%, respectively. India's 3G/4G user base has reached 400 million in 2017, which means the country's mobile internet market is in a stage of rapid development. Urban India with an estimated population of 295 million using the internet out of 455 million while Rural India, with an estimated population of 918 million has only 186 million internet users leaving out potential 732 million users in rural India. Internet penetration in Urban India was 64.84% in December 2017 while rural Internet penetration was 20.26% in December 2017.

The Urban-Rural Digital divide is actually more acute than what the penetration numbers portray. The future growth policies must focus on bridging the digital divide that exists between urban and rural India.

Features of the Information Technology

1. Widespread Presence: ICT are now observed all over the world, even in the remotest regions, due to the range and diversity of telecommunications technologies. So, the isolated local cultures are now capable of moving beyond the limitations of time and space, and it has also enabled all forces around the world to come up and directly connect with the rest of the world. Therefore, information and telecommunication technologies have now covered the entire planet earth in the boundless space disregarding the time and space limitations. (Fat'hian 2006)

2. Diversification: Through development and expansion, information technology enables different people, groups and organizations to have access to it.

3. Delocalization: Considering the range of spread of information and telecommunications technology, data is carried out in the cyber space. It is such that under the present conditions information moves from one corner of the world to another by just pressing a button. (Rajib M 2006).

4. Decentralization: Due to the multidimensional nature of information, different people, organizations and groups may have access to it. In other words, the multitude of sources and the content of messages, connection routes, various senders and receivers of information lead to decentralization in supplying and distributing information technology and consequently information flows at an extensive and complex level. (Rajib M 2006).

5. Flexibility: This quality enables data to be present around the world and accessible by all in different forms and numbers. Thanks to science, data is transmitted rapidly, and due to its mobility, activeness and adaptability, it is more flexible under different conditions. (Rajib M 2006).

6. Speed: Rapid growth of information technology and telecommunications, increases the speed of processing and computing in telecommunication systems such as computers and, also immensely increases the speed of transmitting data.

7. Openness and Clarity: This quality with its diversity and ever presence has indeed drawn the attention of all to itself and managed to reveal the hidden points to the public (Fathian, 2006).

ICT as a Business tool for Tourism Sector

Information communication technologies (ICTs) have been transforming tourism industry globally. ICTs allow consumers to discover, customize and buy tourism products and support the globalization of the tourism industry by providing tools for developing, managing and distributing offerings worldwide. ICTs play a critical role for the competitiveness of tourism organizations and are a key determinant of organizational competitiveness. Enhancements in ICTs' capabilities along with the decrease in the size of equipment and costs, improved the reliability, compatibility and inter-connectivity of numerous terminals and applications. ICTs can bring great advantages in promoting and strengthening the tourism industry's strategy and operations.The emergence of the Internet and global networking of computers, enabling individuals and organizations to access a plethora of multimedia information and knowledge sources, regardless of their location or ownership, often free of charge.

Information and Communication Technologies (ICTs) offer huge opportunities for all to progress and benefit and new prospects exist for economic growth, better service delivery, social and cultural advances (Andreopoulou, 2012). Many tourism enterprises nowadays make use of online marketing (e-marketing) globally as the Internet has been recognized as the most powerful marketing tool (Tsekouropoulos et al., 2012a). Internet marketing services are offered through the corporate websites where the communication between the two parties takes place. (Avcikurt et al., 2011).

The advancements in the field of ICT have deeply influenced the ways in which tourism businesses perform their activities.The service standards have rose quite high and customers expect to be served 24/7 around the year. With the birth of online portals, the travel business revolutionised as these portals have been successful in effectively organizing and distributing distressed tourism inventories to the clients. Hotel chains, amusement parks, railways and airlines have all been using IT in order to reach out to its customers and allowing them to directly access their reservation system. Such application of ICT has only helped these companies in getting better understanding about the needs of their customers and also helped them in offering them the freedom of choice.

The Internet in particular has dramatically changed the way in which consumers plan and buys their tourism destinations, and how tourism providers promote and sell their products and services (Tahayori and Moharrer, 2006:1). As a result, ICT, with the advent of internet, emails, social networks, just to name a few, has become an universal feature of the tourism services. For example, according to Fyall et al. (2009), the significance of the Internet and the World Wide Web in tourism is that information which was once only accessible to travel agents with GDS (Global Distribution

Systems) is now available to the general public 24hrs a day and 7 days a week. The traditional limitations of time and geographical constraints do not exist when the internet is used for information searching and for online transactions. As the internet has moved from channels of technology to channels of sales and customer relationships, the tourism industry has been revolutionized into what is now called e-tourism. E-tourism is a term describing the entire range of applications of ICT in tourism for tourism actors such as tour operators, travel agencies, hotel enterprises, car rental companies, cruise companies, etc, right from the selection of destinations to the return back home, (Tanzania, 2006).

Applications of ICT in Rural Tourism

The following are some of the applications of ICT in Rural Tourism like:

1. E-Tourism: E Tourism is the digitisation of all the processes and value chains in tourism, travel, hospitality and catering industries which enables these organisations to enhance their efficiency and effectiveness. The e-tourism includes not just computer reservation system, but also the tourism sector along with its subset the hospitality industry. E-Tourism includes all business functions such as E-commerce and E-marketing; E-finance and E -accounting; E-HRM; E-Procurement; E-Strategy; E-Planning and E-Management.

2. Operations: ICT has changed the way existing tourism businesses such as hotels, airlines and tour operators communicate and exchange services with each other. Best supplier opportunities all over the world can be detected via the internet and buyer-seller transactions are easily accomplished in a completely electronic environment" (Fyall et al., 2009). Management information systems, enterprise resource planning, customer relationship management (CRM), and other systems based on ICT can accelerate and facilitate information flow, including acquisition, storage, processing and transfer of information concerning both internal processes and the external tourism business environment.

3. Online Flight Tracking System: Travel technology is used to monitor as well as manage travel, and also includes flight tracking system. Global aviation software such as Plane Finder, RadarBox24, Flight Stats.com, etc. are useful in tracking the activities of flights from across the world.

4. Dynamic Packaging: It gives freedom to customers in order to create their own travel package by choosing the transportation services, flight tickets, accommodation types, activities, rental services, etc. instead of choosing a package predefined by the agent. This type of packaging allows the real time sourcing of flights, trains, hotels, cars, etc. according to the requirement of the customer.

5. Marketing: Tourist products and destinations are better advertised via the internet rather than via traditional means, such as brochures, advertising catalogs, etc. ICT allows direct and interactive relationships between tourism organizations and customers. With the help of ICT companies can build a customer's profile and make personalized offerings (Fyall et al, 2009).

6. Payments for services and sales: ICT have created a global market place where forms and payments can be completed directly online (Fyall et al., 2009), and this makes the Internet even more useful for tourists all over the world who can easily make transactions from their homes. In fact, research conducted by Dömeová and Zeipelt (2011) found that the majority of rural tourism customers are gained "through the internet". With the internet, sales can be successfully accomplished without the need of any intermediaries. For example, a customer is able to perform online payments without the intervention of a travel agent. There is also the possibility of using intelligent agents in some stages of the selling process, thus leading to increased overall productivity of the tourism organization by releasing human resources.

7. Computerized Reservation System: It is famous for the ability to store the information and retrieve it when required. It is also used for conducting transactions related to hotel bookings, air tickets, car rentals etc. Some of the most widely used CRS around the world are Amadeus, Abacus (currently owned by Sabre), KIU, Mercator, Navitaire, Sabre, Travel Technology Interactive, Travel Sky, Travelport, etc. With the advent of ICT in general and of the internet in particular, people from all over the world can access prices and accommodation availability. In fact, many rural tourists use the

internet to find information about their destination and plan their trip. Similar findings are reported by Komninos, MacDonald, and Barrie (2010) according to whom a good majority of rural tourists use the internet for information. Bai and Law (2006) also state that ever since the introduction of the internet for business applications in the early 1990's, making online reservations for tourism products and services has turned out to be a popular trend, and Fyall et al. (2009) further state that it reduces the cost of reservations by eliminating both travel agency commissions and conventional telephone bookings.

8. Global Distribution System: GDS forms is a linkage between the service providers in the travel industry, such as airlines, hotels, car rental companies and enabling automated transaction between travel service providers and the travel agencies. It concentrates across three main domains of the industry, viz., accommodation, ticket reservation and car rentals. It not only links the bookings, but also the rates at which each of the services are available. Famous GDS are Amadeus, Galileo, Sabre, Worldspan, etc.

9. Customer Relationship Management: CRM is famous for the convenience it brings in when it comes to managing an organisation's interaction, not just with current customers, but also future customers. CRM helps in analysing customer data and pulls out the history which helps in understanding the needs of the customer and what to cater to. This helps in retention of the customer and maintaining ideal business relationships with customers which ultimately helps in driving sales growth.

10. Audio Tours: Another interesting development in the world of Information technology's integration into tourism is the Audio Tours. An audio tour is a pre-recorded message which includes the details of the places of tourist interests. Usually fed into a handheld device with headsets, the commentary provides the background information and other context related to the place of visit. Audio Tours are usually used in historical sites and museums.

11. GPS Tours: A GPS Tour, similar to an audio tour includes pre-recorded audio commentary through a handheld device, for mobile applications such as trains, walking tours, buses, boats, trolley, etc. GPS tour uses the visitor's location via satellite technology and provides the relevant information to them. These tours are available in multiple language which can be downloaded and makes it possible to mine the common interest location of the visitors using the data from multiple users.

12. Virtual Tour: A virtual tour is an online media presentation representinga real location in the most realistic form possible. It comprises of videos as well as still images and may include sound effects, text, narration and music. Especially hotel chains provide a 360 degree view of not just the room buy also the amenities and property in general as well.

13. Mobile Technology: Advanced developments such as Global Positioning System service, Geo Tagging, search based on location, and online mapping facility has so much more to offer to the traveller at their respective travel destinations. Yet another advancement which is revolutionising the industry of travel and tourism is Personal assistant which is the application thatassists the traveller in having a smooth and safe travel. They also contribute largely on the distribution of resourceful information including great offers and important deals.

14. Social Networks: Social networking sites related to travel and tourism allow travellers to build a network of other travellers and share their travel stories and experiences. The reviews and feedback left by other travellers gives a realistic picture of the destination or service provider. Sites such as Trip Advisor, Matador, Tripsay, Couchsurfing, GeckoGo, Travbuddy, etc are all example of such sites.

Challenges of ICT implementation in Rural Tourism

1. Lack of awareness about benefits of ICTs: Though India has a strong and fast growing IT industry; access to ICTs remains very low, particularly in rural areas. IT penetrations in Indian society are far from satisfactory. PC penetration is 1.21% (China with 4.08%, Asia at 6.39% and world average at 9.63%).Internet penetration in Urban India was 64.84% in December 2017. In comparison, rural Internet penetration is 20.26% in December 2017. Given that total urban population is much

lower than total rural population, the Urban-Rural Digital divide is actually more acute. Despite growing number of people who own a computer and have Internet access, most people in the rural areas have little opportunity to connect to the Internet. They are unaware of socio-economic benefits and stimulus to good governance that ICTs can bring.

2. Lack of infrastructure- The major limitations in rural India is full time availability of electricity, telephony, Internet connectivity and other kinds of basic amenities which are a key challenge for the development of Rural Tourism. Also the mass poverty is affecting India's ability to compete against countries with better physical infrastructure for connectivity. About 1.2 billion people are experiencing extreme poverty that is considered by many to be the worst human rights violation in the world.

3. Language barriers in using the Internet: This issue prevent people from familiarizing themselves with benefits of Internet based information resources that invariably require an ability to understand international languages, especially English. As a result, most people in rural areas cannot read and understand most of the Internet content. Another factor is high illiteracy rate among rural people.

4. Lack of access facilities: Despite the ongoing deregulation of India's telecommunications sector, the access facilities mainly comprise computers and connectivity in rural areas. Rural teledensity is 57.02% as compared to urban teledensity 172.28%.

5. **Lack of local language information products:**Lack of suitable information products tailored to the needs and assimilation capacities of rural people in the state. In order to better adjust their investment decisions people need updated information in concerned field.

6. Lack of motivation to use information over the Internet: In spite of connectivity, people will not use ICTs unless they are motivated to do so. Community ownership of access facilities and availability of facilitator are key factors to induce motivation. Limitations in electricity, telephony, Internet connectivity and other kinds of basic infrastructure in India's rural areas are a key challenge for a number of development organizations (Rao, 2002).

Recommendations for success in Rural Tourism

- The success of business in rural tourism is influenced by a good-quality and realistic evaluation of entrepreneurs' possibilities as well as the possibilities of the area of their place of business with the use of various marketing and other tools (e.g. certification schemes).
- Entrepreneurs should leverage the internet to reach out the customers across world by showcasing their market offers in digital format and display on the website and description and unique features of their offerings. It will enable the users or buyers or middlemen to collect more information about the destinations. The buyers from urban and rural customers can access the information across the internet and evaluate the quality of information and it facilitates them to take a decision.
- ICT can be used to interact effectively with the consumers and personalize the product. It will enable the entrepreneurs to identify the needs and taste of the users so that the product offering can be developed according to the needs and tastes of the users and it will improve their sustainability.
- ICTs can be used to revolutionize tourism intermediation and increase the point's of sale. It will remove the intermediaries so that they can directly sell the product to the customer at lower costs with better profits.
- The websites should be upgraded and updated with the latest ICT technologies to increase the business visibility, profitability and potentiality. The Govt and enterprises should encourage and train the industry people on utilizing the social media. The govt should see that the high speed Internet availability and affordability to reach common man and prices of the computer systems or mobile systems should go down further. Wi-Fi facilities should be provided by the government and power failures should be avoided. The government should encourage the development of mobile commerce (e.g., promotion, payments etc.

Conclusion

In India, Rural tourism is an emerging concept and the future of such niche tourism is very promising as rural India boasts of rich culture and heritage. Moreover, its greeneries, fabulous scenic beauty and wide range of biodiversity can easily grab the attention of city dwellers. Therefore, seeing availability, accessibility and affordability some macro-level marketing strategies should be adopted along with long-term planning, scrutiny, monitoring and regular inspection. In addition, proper market research will remove the uncertainty of business and can bring lots of socio-economic benefits to the rural community. It is essential that the current Information and communications technologies should be updated, upgraded and seamless integration both internally and externally should be done to improve the ruraltourism business operations. The integration of ICT in rural tourism would benefit both entrepreneurs and customers bringing together and other stakeholders on a common platform. The selection of right information communications technology tool is crucial to match the customer requirements with service dimensions.ICTs integration provides a power tool that brings advantage in promoting and strengthening the rural tourism industry.

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Digital Marketing: Opportunities &Challenges with Specific Reference to the Banking Sector

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ABSTRACT
Digital Transformation is far beyond just moving from traditional banking to a digital world. It is a vital change in how banks learn about, interact with and satisfy customers. An efficacious Digital Transformation begins with an understanding of digital customer behavior, preferences, choices, and likes, dislikes, stated as well as unstated needs, aspirations etc... And this transformation leads to the major changes in the organizations, from product-centric to customer-centric view. A study of paper entitled to understand Consumers in the Digital Era sheds some light on the desires of today's digital consumer. In spite of various current challenges e.g. network , culture , device availability , connectivity , electricity in remote areas , logistics expenses with digital banking and mobility, the need is no longer to "leap-frog" but to "deep-dive" into the future. Going digital and mobile for a bank is no longer an option, it's a simple bare necessity - to collaborate and flourish. All these and rest are taking India to the threshold of the big league and to make the country battle-ready to compete with the most influential industrial and financial powers of global businesses. We can't create a digital vision if you don't have leaders who understand digital. Digital India has leaders & the goal is to make banking cheaper, more efficient and easier to access for all of the country's citizens. This paper

Key issues:-Digital banking, Current status, Way forward, Digital banking with reference to SBI and Axis Bank.

INTRODUCTION

DIGITAL BANKING

With demonetization and the subsequent thrust from the government for cash less transactions, the share of digital and online transactions have been steadily gaining momentum. The relaxations given in MDM and the new tax regulations; all help in bringing in more customers for digital.

The need for computerization was felt in the Indian banking sector in late 1980s, in order to improve the customer service, book-keeping and MIS reporting. In 1988, Reserve Bank of India set up a Committee on computerization in banks headed by Dr. C. Rangarajan.

Banks began using Information Technology initially with the introduction of standalone PCs and migrated to Local Area Network (LAN) connectivity. With further advancement, banks adopted the Core Banking platform. Thus branch banking changed to bank banking. Core Banking Solution (CBS) enabled banks to increase the comfort feature to the customers as a promising step towards enhancing customer convenience through anywhere and anytime banking. Different Core banking platforms such as Finacle designed by Infosys, Banc's by TCS, FLEXCUBE by i-flex, gained popularity.

The Buzzword in India today is creating a cashless future. Buoyed by the successful acceptance of demonetization, the Government of India (GoI) is now pushing digital transactions. The GoI has set a target of 25 billion digital transactions in the next financial year (FY18) through multiple facilities, including platforms such as Aadhar Pay, Unified Payment Interface (UPI), Immediate Payment Service (IMPS) and debit cards. GoI has also launched a mobile application (Bharat Interface for Money - BHIM) for facilitating e-payments through bank accounts. The payments industry is thus seeing a lot of action from various fintech players to leverage on GoI's digital push.

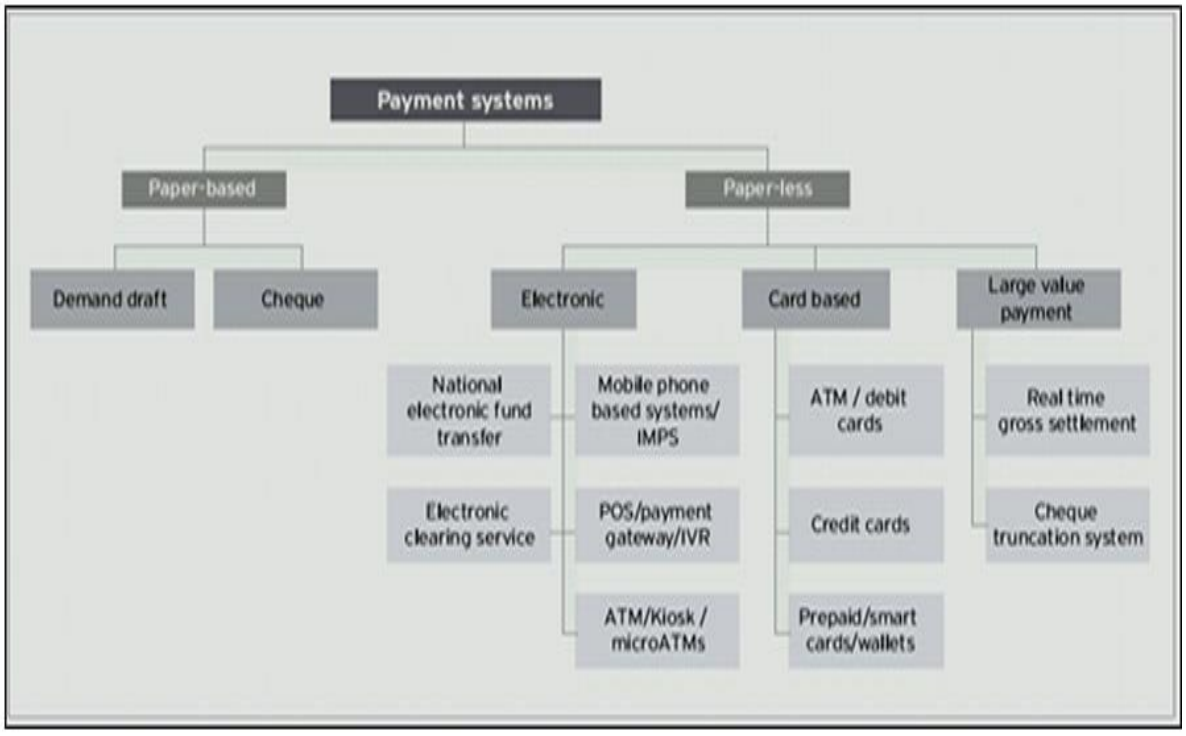
RBI has been a guiding force for the banks in forming regulations and giving recommendations to achieve various objectives. Commercial Banks in India have moved towards technology by way of Bank Mechanization and Automation with the introduction to MICR based cheque processing, Electronic Funds transfer, Inter-connectivity among bank Branches and implementation of ATM

(Automated Teller Machine) Channel have resulted in the convenience of anytime banking. Strong initiatives have been taken by the Reserve Bank of India in strengthening the Payment and Settlement systems in banks.

CURRENT STATUS IN THE DIGITAL SPACE

Indian Government is aggressively promoting digital transactions. The launch of United Payments Interface (UPI) and Bharat Interface for Money (BHIM) by National Payments Corporation of India (NPCI) are significant steps for innovation in the Payment Systems domain. UPI is a mobile interface where people can make instant funds transfer between accounts in different banks on the basis of virtual address without mentioning the bank account.

Today banks aim to provide fast, accurate and quality banking experience to their customers. Today, the topmost agenda for all the banks in India is digitization.



According to the RBI Report in 2016-17 there are 2, 22,475 Automated Teller Machines (ATMs) and 25, 29,141 Point of Sale devices (POS). Implementation of electronic payment system such as NEFT (National Electronic Fund Transfer), ECS (Electronic Clearing Service), RTGS (Real Time Gross Settlement), Cheque Truncation System, Mobile banking system, Debit cards, Credit Cards, Prepaid cards have all gained wide acceptance in Indian banks. These are all remarkable landmarks in the digital revolution in the banking sector. Online banking has changed the face of banking and brought about a noteworthy transformation in the banking operations.

WAY FORWARD

The banking landscape as we know it is changing. A new wave of technology is revolutionizing the way customers engage with their finances. From social to mobile capabilities, banks have to rethink the way they do business to deliver a better customer experience and remain competitive.

The recent introduction of open banking and the Payments Services Directive 2 (PSD2) regulation is accelerating this transformation by placing power in the hands of customers. Banks must now allow customers to share their financial data, such as spending habits and regular payments, with authorized third-party providers if customers wish to do so. To navigate this unchartered reality, banks must ensure their digital offering is fit for purpose.

Banks need to reach a point where they understand the needs of the customer, without taking any direct feedback

Chris Probert, Capco partner and head of UK data, explains: "Both top and bottom-line growth depend on banks overcoming the challenge of large and costly legacy infrastructures. As transactions and services continue to move from the physical to the purely digital, banks will find speed to market and flexibility invaluable.

LITERATURE REVIEW

Simplice A.Asongu, Nicholas M Odhiambo (2017): A study that enquire into the relationship between mobile banking & inclusive development that includes quality of growth, in equality and poverty. The conclusion that can be drawn out is that digital banking application will play a supreme role in responding to the problems of deficient growth of the developing countries.

Nidhi Singh, Neena Sinha (2016): This study is concerned with digital banking which states that the banking sector has to create more consciousness to the customers regarding the banking services provided by the banks. This study also reflects the alteration of traditional method of transaction used by the customers by adding digital banking services.

Rakesh H M & Ramya T J (2014) in their research paper titled "A Study on Factors Influencing Consumer Adoption of Internet Banking in India" tried to examine the factors that influence internet banking adoption. It is found that internet banking is influenced by its perceived reliability, Perceived ease of use and Perceived usefulness. In the process of internet banking services expert should emphasize the benefits its adoption provides and awareness can also be improved to attract consumers‟ attention to internet banking services.

Preeti Singh (2011): The study finds out that there are several problems applicable to digital banking services. According to this study from the customer's point of view security, standard of services provided by banks, mobile operations are some of the analytical issues or challenges faced by digital banking in India.

Hsiu-Fen-Lin (2011): This study proves that the new technological improvements in banking services like mobile banking and internet banking have improved to a great extent which promotes the customers to follow the new banking services like mobile banking .The results of this study states that some of the advantages of digital banking helped the customers to accept the digital banking services provided by the banks.

Dr.Rejikumar G, Sudharani Ravindran D (2012) in the journal of internet banking & commerce studied about the factors affecting the prolongation decisions of the early adopter of digital banking services. The study proved that after choosing the new technology, the customer finds satisfaction in the quality frame work of the services.

DIGITALIZATION OF BANKS WITH REFERENCE OF AXIS AND SBI BANK

AXIS BANK

Axis Bank Ltd, which embarked on its digital journey about six years ago, is now implementing a series of measures that include self-service kiosks, Aadhaar-based customer services, and automation—all aimed at increasing the momentum of its digital transformation journey. The bank has installed digital self-service kiosks, which it has christened "speed banking" services, at over 1,000 branches (out of a total of around 3,400 branches), in addition to deployment of 25,000 biometric readers across its network to adhere to eKYC (electronic know your customer) norms in new account sign-ups and other Aadhaar-based services.

The idea, insisted Rajiv Anand, executive director of the bank, in a recent interview, is to "drive digital at scale". "While a lot of conversations in digital are around mobile apps or the front end, we are focused on what goes on behind the scenes. Unless you fix the back-end, it is like putting lipstick on a pig," he added.

Axis Bank, for instance, has provided 16,000 tablets to its customer officers in its branches. This, according to Anand, will help customer requests and updates to be done digitally rather than first asking users to fill up a form, and then sending it to a central team, which is a "time-consuming routine".

According to Anand, 85% of household current and savings accounts are now opened through tablets—out of which 50% are done using eKYC. "Nearly 75% of all our transactions are in an instant gratification mode, wherein they can be done at the branches either using biometrics (through Aadhaar linkage) or via the one-time password received on the mobile," he added.

Axis Bank started its digital journey five-six years ago, according to Anand. "In the first phase, we took a 90,000-feet view of process redesign—what to centralize, what to keep in the branches and getting the organization realignment done," he explained. The second phase was about "lean and business process re-engineering", including robotic process automation (RPA). The focus was on getting it right the first time. The third and fourth phases, currently under way, involve "digitization at scale" and the use of new-age tools like RPA, machine learning (ML) and artificial intelligence (AI).

Most banks in India, especially large private sector lenders such as HDFC Bank Ltd and ICICI Bank Ltd are at different stages of digital readiness—all in a bid to meet customer needs in an era when banking is moving to online and mobile clicks rather than physical footfalls.

"As India moves towards a less-cash economy and the adoption of the internet, and mobile continues to grow, the efforts of banks at digitization will have a more pronounced impact, especially in financial inclusion in rural areas. More process automation will certainly result in faster processes and better customer service," said Arjun Bhuwalka, senior manager at Aranca, a global research and advisory firm. He added that as more banks advance in their digital journeys, the competition will only get intense, especially among large private sector lenders that are seen to be ahead in digital compared to their public sector peers.

SBI BANK

State Bank of India (SBI) is working on its own digital bank – SBI Digi Bank – which it plans to launch in the next three to six months, according to *ET Tech*.

"We are working on a digital-only bank where no individual will be visible to the customer and all transactions will be done with the help of apps, internet banking and mobile banking," *ET Tech* quotes a source from SBI.The new bank will be open for both new and existing customers of SBI, it is understood.

It will offer current and savings/deposits accounts, loans, insurance, mutual funds investment, and personal financial management (PFM).

SBI Digi Bank will use the Aadhaar infrastructure, created by the Unique Identification Authority of India (UIDAI), to onboard customers and provide them with online services. UIDAI collects the biometric and demographic data of residents, stores them in a centralized database, and issues a 12-digit unique identity number – Aadhaar – to each resident.

The source tells *ET Tech* there will be no physical paperwork, as everything will be done digitally.

Some of the SBI's In Touch branches (digital branches for instant account opening, issuing and printing of personalized debit cards, and customer assistance/advice via video) will be equipped.

In line with the Bank's plans to carve deeper inroads into the digital era, Dimension Data set up Digital Branches and enabled SBI to create a virtual pool of experts and specialists, co-located in strategic centers or dispersed across the organization. Equipped with the latest technology, it provides SBI's users with an immersive audio and visual experience with the added ability to print scan and share the document using touchscreen controls. It helps create an instant connection with the customer in real-time; thereby ensuring that SBI doesn't lose a potential customer.

As India's largest bank with over 16 crore transactions per day, 25,000 branches and over 730 million customers, SBI has unique challenges to stay relevant and provide the right solutions to our diverse clientele. We have constantly innovated using transformative technology to bring our customers closer to the Bank. The solution will help make banking a lot more personalized for SBI's customers with a superior virtual non-transactional banking experience. We have been working with Dimension Data. On various successful projects to help bring better services to our customers for the past 17 years. Today's customer is well informed and tech-savvy, and do not believe in the concept of time-consuming processes, with digital branches, we will be able to provide them with that," Mrutyunjay Mahapatra, Deputy Managing Director and CIO, SBI.

With most of the banks joining the digital bandwagon, alternative channels such as ATMs, internet, mobile banking and business correspondents are likely to become the main delivery channels for providing banking services in the country, says Arundhati Bhattacharya, Chairman, State Bank of India.

Currently, besides the 16,400-odd brick-and-mortar branches, India's largest bank provides banking services through alternate touch-points, including about 57,000 State Bank Group ATMs, 2.4 lakh point-of-sale terminals, around 58,600 customer services points/business correspondents, digital 'SBI INTOUCH' branches, internet and mobile banking.

In an interview to *Business Line,* Bhattacharya observed that digital banking is now a given and banks have to ramp up their game to ensure that they have much of their product/service offerings on the digital platform.

Bhattacharya buttressed the importance of digital banking by pointing out that almost 65 per cent of the population is below 35 years of age and the young generation is very technology savvy.

"They (the young generation) are very impatient, they want stuff to happen now, immediately, and they are not going to wait for delivery. They would like to have a choice as to where they do the banking transaction.

"So, they are not going to be bound by having to come to a branch in order to do a job. They would like to do it (transaction) in the bus, in the train, in the office, at home, wherever, on the move," she said.

Banks are doing lots of efforts to literate their customers regarding digitalization of banks but then to banks are facing lots of problems. So with the help of this paper we want to find the solution for this problem.

RESEARCH METHODOLOGY

RESEARCH OBJECTIVE

The study was undertaken with the following specific objectives in view: -

a- Giving an insight in to the concept of internet and mobile banking and inherent benefits accruing to the customers from the view point of public sector (SBI) and private sector (Axis bank).

b- Identifying the degree of importance which the banking customers attach to various internet banking services of SBI and Axis Bank.

c- To identify the challenges faced by SB and Axis bank in providing internet banking services to its customers for their utmost satisfaction.

d- To suggest suitable ways towards digital transformation and its sustainability in SBI and Axis bank in order to establish strong relationship with customers.

HYPOTHESIS OF THE STUDY

H_0- There is no significant difference with regard to the usage of online banking operations in Public sector Bank (SBI) and Private sector Bank (Axis).

H_1-There is significant difference with

SELECTION OF SAMPLE

SAMPLE: Axis and SBI Bank executives in Kanpur

SAMPLE SIZE:-Bank executives 15 each.

RESEARCH DESIGN: - Descriptive research is used for the study.

DATA COLLECTION

Secondary data: -For secondary data collection a framework and a list of sources and materials were developed which was used for the analysis.

Primary data: -Questionnaire was used to collect primary data consisting of 20 structured close ended questions. In orders to get deep insight of the study an interview schedule was also conducted with the executives of the Axis and SBI Bank in Kanpur region.

ANALYSIS AND RESULT

MAJOR FINDINGS OF THE STUDY

1. According to Banks executives of Axis and SBI 70% customers are aware about the digitalization and 30% are not aware.
2. Both banks executives said that the digitalization has affected their banks.
3. With the help of this survey we found that most of the customers are using online banking but than to they are connected with traditional banking.
4. Banks are providing awareness among the customers than to .customers are not using online banking due to the reason that they are finding the process to difficult, don't trust internet services when it comes to managing their money and some do not have internet at home.
5. SBI and Axis banks are facing many challenges in providing online banking services to their customers and these are technology illiteracy, poor adoption and eventual failure of digital initiatives and poor experience.
6. Many Executives said that 80% customers are worried about the increasing cyber-attacks and online frauds. The end result is going to be much more increase in information security spending.
7. Both the banks are involving their customers when they developed any new or improved digital solutions, channels and product by CRM, customer feedback and educate their customers by post development of any new digital solution but sometimes it is not possible to inform every customer due to technology illiteracy.
8. Banks are strongly agreeing that introduction of the internet and mobile banking has affected the customers' satisfaction in either direction in banks.
9. Banks spend around 80 to 90% cost in maintaining these legacy applications and there is less budget available for innovation with the newer technologies.
10. **Result of T test**

Banks	Mean Score	Standard Deviation	Standard Error	Mean Difference	t value
SBI	**3.2**	**1.03**	**.2353**	**.6**	**2.55**
Axis	**3.8**	**.775**			

As H_a is two sided and the rejecting regime applying two tailed test at 5 percent level of significance using table of t distribution for 4 degree of freedom is 2.776 and the observed value is 2.54.

As the observed value is less than (2.54< 2.776) that implies H_0 is accepted and H_1 is rejected. If H_1 is rejected so we can say that there is no difference between with regard to the usage of online banking operations in Public sector Bank (SBI) and Private sector Bank (Axis).

SUGGESTIONS

1. It is important to offer risk mitigation solutions by blending private and public data.
2. Reduce frauds for banks and their enterprises by offering fraud management information.
3. There is no doubt that digital banking has brought in amazing customer experience. However, increased levels of cyber threats have the potential for causing significant disruptions in their services apart from risks related to sensitive customer information and internet frauds. It is therefore important to see how information technology systems and data security risks are monitored and managed.
4. Banks in India need to adopt new innovations e.g. APIs, Artificial Intelligence, Block chain, Augmented and Virtual reality, IOT.
5. Banks need to reimagine process e.g. robot-advisors offering advice to the customers, interactive, chat-bots offering advice in account management. These enriched processes will help improve customer satisfaction.
6. Banks should have a truly multichannel CRM system, to create a holistic view on customers and deepen the relationship. It's possible to interact with customer from all channels in a more valuable way, both for clients and for the bank.
7. To overcome the above challenges the need of the hour is to have a SMART digital banking platform that is S-Scalable and Secure, built with Modern IT architecture, that provides for business Agility, and helps banks and financial institutions to Re-imagine business models and processes and helps reduce their TCO (Total cost of ownership).

CONCLUSION

The aim of this study was to compare the Internet Banking services between SBI and Axis Banks and find that Internet users have a positive opinion on the subject or not. We conducted T test on our initial hypotheses in order to check validity, dispose unnecessary factors, to validate our measures and find out which hypotheses are qualified for each sample. The findings of our analytical statistic research showed primarily that both the banks exhibited good fit of adjustment and that both samples had strong explanatory power. According to previous studies on Internet Banking, relative advantage is one of the most powerful constructs of attitude. The other reason was that all previous literature on the specific subject confirms that there is a high significance between behavioral intention and actual usage of Internet Banking. The fact that our hypotheses had low T-values in their majority, leads to the conclusion that probably the constructs of our test model were not the appropriate to explain Internet banking user acceptance in the two Banks. Banks need to be porous to new ideas and nimble enough to implement these ideas. Technology is infiltrating every aspect of our lives, making everything from transacting to payment of bills to filing tax, easier and more efficient.

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ANNEXURE

1. Are your customers aware about the digitalized services of your bank?

a) Yes b) No c) may or may not

2. Your bank branches mostly consist of digital services?

a) Yes b) No

3. Do you think digitalization has affected your Bank?

a) Yes b) No

4. Do you involve customers when you develop new or improved digital solution, channels and product?

a) Yes b) No

5. If yes, how do you involve them

a) CRM

b) Customer feedback

c) Suggestions of your customer

6. If no, what's the reason for not involving them?

7. You can say that the latest digital development has affected your bank.

a) - Agree b) - strongly Agree c) Neutral d) Disagree e) strongly disagree

8. Which online banking operations your customers used the most?

	Visiting branch	Telephone banking	Online banking	Other (mail, ATM, etc.)
Pay bills	○	○	○	○
Consult balance/bank statements	○	○	○	○
Print bank slip or statement	○	○	○	○
Open an account	○	○	○	○
Bank transfer	○	○	○	○
Investments	○	○	○	○
Savings	○	○	○	○
Insurance	○	○	○	○
Loans and Mortgages	○	○	○	○
Contact your bank advisor	○	○	○	○

9. Your customer use the which online banking operations rank them (1 to 5) where 1 stands for never , 2 for rarely,3 for occasionally ,4 for regularly and 5 for always.

A) Never b) rarely c) occasionally d) regularly d) always

10. The technological developments have affected customer behavior of your bank.

a) - Agree b) - strongly Agree c) Neutral d) Disagree e) strongly disagree

11. Do you think that human contact is important for banking relation?

- Completely
- Somewhat
- Unsure
- Not at all

12. Why your customer has never used online banking services?

a)Do not have Internet at home

b)Don't trust internet services when it comes to managing my money

c)Online services don't enable them to do what they want to do

d)I prefer to have personal human relation

e)Find the process to difficult

f) Other, please specify

13. A good digital service platform will give a competitive advantage to your bank.

a) - Agree b) - strongly Agree c) Neutral d) Disagree e) strongly disagree

14. Can you say that the introduction of the internet and mobile banks has affected the customers' satisfaction in either direction in your bank?

a) - Agree b) - strongly Agree c) Neutral d) Disagree e) strongly disagree

15. What Challenges are you facing in providing online banking services to your customer?

a)Technology illiteracy

b) AI and Robotic Process Automation on traditional workforce

c) Poor experience

d) poor adoption and eventual failure of digital initiatives.

A Study on the Effect of Quality of E-Services in Digital Banking

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ABSTRACT
The words "Electronic Commerce" and "Digital marketing" are now normally used by business houses and consumers around the world as markets are recognizing the available opportunities for exchange function in the on-line business environment (Karakaya and Charlton, 2001).

August 15th 1995 marked a new dawn in India's communications history, when Videsh Sanchar Nigam Ltd (VSNL) then a state owned Telecom Company introduced commercial InterDigital services. Till then InterDigital connectivity was available to only select few researchers and government officials through the ERDIGITAL or NICDIGITAL Digitalworks.

With the rapid change in the information technology, the frequency of human–computer interactions increases, which regards trust as an important factor between users and websites (Johnson, Bardhi & Dunn, 2008). Ajzen (1988) divided trust in technology into trusting beliefs and trusting intentions. This increasing frequency of human- computer interaction has paved the way for the banking industry to provide services to the banking customers online but also banks has to ensure about the expected quality of services can be delivered or not. According to InterDigital World Stats, India has occupied the third largest country in number of interDigital users around the world following China and USA on first and second positions despite having a less interDigital peDigitalration rate as low as 8.5 percent. In the previous literature, it has been observed that retaining customers in online service is very difficult. Therefore, this research study aims at understanding the services quality factors and their effect on the satisfaction of customers in case of e-banking.

Keywords: E- Service quality, customer satisfaction, E-banking services

1. INTRODUCTION

The banking industry has tremendously changed in recent decades given the changes in consumer demand and technological advancements, particularly in computer and online technology, and competition from both banks and other financial institutions. In today's scenario, the banking affairs increasingly depend on technological advancements and techniques and services adopted by the banks for providing to their customers. Various banks are providing their services via different electronic and online channels that are acting as a substitute for traditional brick-and-mortar branch Digital works (Suoranta and Mattila, 2004).

With the introduction of latest technology and technological advancements in every field, inter Digital has become the root for every business and other practices of business firms, delivery of service quality through electronic route for online trade becomes very vital issues for business houses dealing in service industry.

As technology changes the competitive scenario and the environment of the financial services industry, innovations in telecommunications are playing a significant role in the banking industry. Over the last few decades, and with the growth of digital banking in the upfront of banking industry, banks and financial institutions have paved the way into the next technological frontier: mobile access (Mallat et al., 2004).

The Digital Banking has changed the entire perspective the way world should see it. Now a days, it has been regarded as "need to have"rather than "nice to have" service. Digital banking, therefore now has become an integral part for the developed and developing economy because of its capacity to

provide cheapest services to the customers of banks. Not only these services are cost effective and result oriented but also provides a greater sense of satisfaction to customers in time saving and ease of use.

2. LITERATURE REVIEW

Technological advancements in the banking industry have been a principal source of competitiveness among the various banks and financial institutions. The use of technology has opened the ways for the banks to reduce their costs and achieve higher productivity and efficient customer relationships (Lee, Kwon and Schumann, 2005).Majority of the banks providing services around the world in developed and developing countries are using Digital Banking to cater to the needs and services of their customers. Yang (2001) and Zeithaml(2002), suggested that online services greatly affects the banks and customers relationship as far as customers trust is positive towards banks, therefore the banks should pay more attention on these- service parameters.

Acharya et. al., (2008) presented that US community banks which were more focusing on technological aspects and aggressively using interbank banking for online customers had generated more revenues and better profitability. Boehm (2008) in a study conducted at Europe concluded that customers were highly connected with Digital Banking rather than the services provided by the traditional form of banks. One of the important feature of online banking is not only that it provides services from anywhere but also minimizes and reduces the idle time of customers that is one of the dominating way in the traditional banking system where customers has to wait rigorously in queue.(Milne and Boza, 1999) commented and state one of the basic problem of going online in case of banking is that customers lacks face to face communications, which sometimes in turns the customers to develop a mistrust in banking and customer relationship.

Due to the speedy expansion of Digital Banking services, various researches have been conducted for measuring the impact of Digital Banking service quality in the banks in India. Digital Banking has opened various opportunities for the banks as well as for the customers to use the banking facilities and services timely and cost effectively. The era of digital banking in India has started with the use of ATM (Automatic Teller Machines) (Titrade Cristina and et al., 2008). E banking is also referred to as Digital Banking, virtual banking or online banking (Mobarek, 2007). Digital Banking has seen the very rapid growth in the last decade in a growing economy like India. Therefore, it has paved the way for many researchers focusing on conceptualizing, measuring and studying the Digital Banking service quality.

As explained by Lewis and Booms (1983), service quality as “a measure of how well a delivered service matches the customers’ expectations” .In other words, it refers to the difference of customer’s perception of what product will provide and the actual delivery. Various researchers have identified various dimensions for measuring service quality in banks. Johnston (1995) talked about various dimensions and again Johnston (1997) has verified and given that online customers consider reliability and trust/security the dominating factors, and responsiveness, communications and competencies behind them.

Many of the researches has identified that the various quality dimensions in physical/ traditional banking are not prominent in e service quality for banking. Keeping online banking as a delivery channel of banking service, service quality dimension such as cleanliness or physical appeal or interiors of the bank may have negligible applicability for online banking users. Zeithaml et al., (2000) proposed 11 factors to measure e-service quality and Yang et al., (2004) proposed 6 e-service quality parameters. Parasuraman et al., (2005) later on, came up with ES-QUAL consisting of 4 factors used for measuring e service quality including with 22 items.

Customer satisfaction is very important parameter to be taken care of in case of online services, as it is very difficult to manage and retain the online customers loyal. Not only loyal but also not allowing them to switching off to different service providers. In case of online services, there is no personal touch and interaction between the service provider and consumer, therefore, this lack in personal commitment too. A satisfied customer may be regarded as an unpaid brand ambassador. But on the

contrary, if the service delivered by the organization fall below of expectation, then customers remain dissatisfied and may be a great threat to the positive word of mouth publicity (Zeithaml, Berry, & Parasuraman, 1996). Satisfaction level of customer is an evaluation that is formed by comparing the actual services taken delivered and expected level of services (Oliver, 1980).

In banking, which is always regarded as a relationship of trust and personalization, the deficiency of personal touch with the bankers, paved the requirement to understand the importance of technology and service quality for the satisfaction of the customers. Therefore, Bankers should have the information on how to retain their customers and ultimately how to make customers aware of the satisfaction level and finally converting them to satisfied customer, specifically in terms of online service quality, and in Digital Banking, satisfaction of customers should be treated on priority. "Customer satisfaction is a collective outcome of perception, evaluation and psychological reactions to the consumption experience with a product/service" (Saha and Zoha, 2005).

Table 1. E-service quality items

S. No.	Statements	1	2	3	4	5
	Efficient and reliable services					
1.	Digital banking delivers what I need.	[1]	[2]	[3]	[4]	[5]
2.	Digital banking is easily availability for banking transaction	[1]	[2]	[3]	[4]	[5]
3.	Digital banking enables me to complete a transaction in a quick way	[1]	[2]	[3]	[4]	[5]
4.	Information over website is arranged Systematically	[1]	[2]	[3]	[4]	[5]
5.	Service taken by customers via Digital Banking pages is fast	[1]	[2]	[3]	[4]	[5]
6.	Digital banking has simple usability	[1]	[2]	[3]	[4]	[5]
7.	Digital banking services are faster in fulfilling the promises than traditional banking	[1]	[2]	[3]	[4]	[5]
	Site aesthetic					
8.	The information on web page is attractively Shown	[1]	[2]	[3]	[4]	[5]
9.	The available information on webpage is well organized	[1]	[2]	[3]	[4]	[5]
10.	The info on the webpage is easy in understanding	[1]	[2]	[3]	[4]	[5]
11.	The e-banking website, its layout and colors are visually pleasing	[1]	[2]	[3]	[4]	[5]
	Responsiveness					
12.	Digital banking provides me with quick responses	[1]	[2]	[3]	[4]	[5]
13.	Digital banking website handles customers request quickly.	[1]	[2]	[3]	[4]	[5]
14.	Digital banking Quickly resolves online transaction Problems	[1]	[2]	[3]	[4]	[5]
15.	Digital banking provides suggestions incase of errors and unprocessed transactions	[1]	[2]	[3]	[4]	[5]
16.	Digital banking provides solutions to my problems promptly.	[1]	[2]	[3]	[4]	[5]
	Fulfillment					

17.	Arrangement of Digital Banking services are easy to follow	[1]	[2]	[3]	[4]	[5]
18.	the services being delivered are exactly the ones which are promised	[1]	[2]	[3]	[4]	[5]
19.	Digital banking portion of website works smoothly	[1]	[2]	[3]	[4]	[5]
20.	Digital Banking transactions are always accurate	[1]	[2]	[3]	[4]	[5]
21.	Digital banking quickly processes what I request.	[1]	[2]	[3]	[4]	[5]
Security/ trust						
22.	No disclosure of Customers personal Information	[1]	[2]	[3]	[4]	[5]
23.	Feel safe in Digital Banking transactions	[1]	[2]	[3]	[4]	[5]
24.	I am having confidence in the e-banking service	[1]	[2]	[3]	[4]	[5]
Satisfaction						
25.	I am delighted with my online banking services	[1]	[2]	[3]	[4]	[5]
26.	Transacting online is a enjoyable experience	[1]	[2]	[3]	[4]	[5]
27.	Digital banking services are enjoyable	[1]	[2]	[3]	[4]	[5]
28.	Overall, Digital banking services provides me high sense of satisfaction	[1]	[2]	[3]	[4]	[5]

3. OBJECTIVES OF THE STUDY

In the previous literature, it has been observed that retaining customers in online service is very difficult. Therefore, this research study aims at understanding the services quality factors and their effect on the satisfaction of customers in case of digital banking.

4. RESEARCH METHODOLOGY

A survey method has been largely used to collect fresh data from the suitable population (Cooper and Schindler, 2013). We investigated the past researches to identify valid measures for this study and adapted prominent existing scales to understand the effect of e-service quality dimensions. With the aim to attain the objectives of this study, fresh data is collected using the questionnaires consisting : Part -1 of the questions including Demographics and digital banking usage services. Parts- 2 of the questionnaire included noticeable variables i.e. efficient and reliable services, site aesthetic, responsiveness, fulfillment, security and satisfaction which again sub- divided into 28 statements which directly related to e- service quality and satisfaction level. Respondents' responses have been collected with the help of 5 point Likert scale. The samples were taken for the study and included 100 customers who use Digital Banking belonging to various banks of NCR region. The samples collected were selected by using Convenience sampling technique wherein these respondents were selected from the population of the different age groups included in population.

5. DATA ANALYSIS AND INTERPRETATION

Primary data was taken from 100 respondents. Out of 100, 10 questions were not taken for the purpose of the study. 90 percent was the response rate used in this study. The incomplete and inaccurate replies are dismissed to have better proximity values in results. After collecting the raw data, the reliability of the questionnaire is measured and verified by using Cronbach's alpha. In order to find out the objectives, factor analysis technique is applied using SPSS 19.0

Table- 2. Factor Loading and Reliability test for study's variables

S. No.	Statements	Factor Loading	Cronbach's Alpha
Efficient and reliable services			
1.	Digital banking delivers what I need.	0.709	0.889
2.	Digital banking is easily availability for banking transaction	0.805	
3.	Digital banking enables me to complete a transaction in a quick way	0.885	

4.	Information over website is arranged systematically	0.787	
5.	Service taken by customers via Digital Banking pages is Fast	0.692	
6.	Digital banking has simple usability	0.893	
7.	Digital banking services are faster in fulfilling the promises than traditional banking	0.885	
	Site aesthetic		
8.	The information on web page is attractively shown	0.821	0.722
9.	The available information on webpage is well organized	0.759	
10.	The info on the webpage is easy in understanding	0.673	
11.	The e-banking website, its layout and colors are visually Pleasing	0.764	
	Responsiveness		
12.	Digital banking provides me with quick responses	0.681	0.772
13.	Digital banking website handles customers request quickly.	0.781	
14.	Digital banking Quickly resolves online transaction Problems	0.785	
15.	Digital banking provides suggestions incase of errors and unprocessed transactions	0.678	
16.	Digital banking provides solutions to my problems promptly.	0.634	
	Fulfillment		
17.	Arrangement of Digital Banking services are easy to Follow	0.887	0.695
18.	the services being delivered are exactly the ones which are promised	0.881	
19.	Digital banking portion of website works smoothly	0.776	
20.	Digital Banking transactions are always accurate	0.692	
21.	Digital banking quickly processes what I request.	0.743	
	Security		
22.	No disclosure of Customers personal Information	0.691	0.878
23.	Feel safe in Digital Banking transactions	0.725	
24.	I am having confidence in the e-banking service	0.781	
	Satisfaction		
25.	I am delighted with my online banking services	0.887	0.886
26.	Transacting online is a enjoyable experience	0.766	
27.	Digital banking services are enjoyable	0.735	
28.	Overall, Digital banking services provides me high sense of satisfaction.	0.805	
	Total Variance Explained- 68.4 %		

Table 3: Model Description

Model	R	R Square	Adjusted R Square	Std Error of Estimate
1	.678a	0.523	0.316	0.22180

Table 8 is Y = 1.365 + 0.23X is defined by Regression Linear equation which shows, the influence by various other factors.

Table 4: Model Summary

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	5% Confidence Interval	
(Constant a) X	B	Std Error.	Beta			- 0.055	3.022
	1.365 0.230	0.655 0.211	0.534	2.011 2.122	0.044 0.051	0.02 1	0.811

a. Dependent Variable: Y

6. DISCUSSION

EFA (exploratory factor analysis) technique was applied on the various E-service quality dimensions. The measurement and analysis of the instrument was carrying on the raw data from the replies of the respondents showed a 2-factor solution. The 2-factor solutions explained 68.4% of variance. Also, Procedures of principal component and varimax were taken to conclude the dimension of orthogonal factor. The criterion of 1.0 was applied in order to get the factor extraction whereas loadings of 0.40 were applied for item inclusion (Hair et al., 1995). To measure the effect of independent variable to the dependent variable, x (e-service quality) on y (customer satisfaction), Determination Co-efficient is used. The result of this study depicts that the e-service quality has affected 53.4% on the customer satisfaction, while the remaining 46.6 remained unaffected. The links between e-service quality factors and their effects on customer satisfaction are commendable for more depth reflection (Rod et al., 2009). Also, a greater in depth factors can also be studied for further investigation in order for banks to understand the effects and usability more effectively (Patsiotis et al., 2012).

7. CONCLUSION

This research study has validated the various dimensions of ES-QUAL which can be used for measuring the effect of e-service quality in case of digital banking services by the banks operating in NCR region. The study has validated the instrument taken for the study and was found reliable and affecting the customers satisfaction.

The study has shown that the two factors security/trust and efficient and reliable services has been the factors which respondents have felt the most important one. Besides these factors, other factors like site aesthetics, responsiveness and fulfillment also affected the customers' satisfaction in online banking. Hence, we can conclude that e-service quality has significant impact on the satisfaction of online user in e- banking services.

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A Study of Consumer Satisfaction towards Jio Products and Services in Surat City

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ABSTRACT
In the past, many researchers had studied the satisfaction level of customers towards Jio sim. But the Jio has changed its pricing policy over a period of time. From completely free services to annual tariffs to quarterly and monthly plans to levying charges on calls made to users of other telecom operators recently. This might lead to change in the satisfaction level of customers towards Jio sim products and services over a period of time. Thus, the main aim of the study is to identify the level of customer satisfaction of Jio users towards Jio products and services. A sample size of 213 Jio users has been taken from the Surat city and primary data has been collected through structured questionnaire for the purpose of the research study. Findings of the study revealed the customers are moderately satisfied with respect to the multiple variables studied for the said purpose. Also, the major reason for customers to buy or shift to Jio is its schemes and offers followed by the cheaper data services. Jio users expects from Jio Telecom to improve it's network coverage, network strength and also to reduce its tariffs in days to come.

Keywords: Customer Satisfaction, Jio, Jio Telecom, Network Service Provider, Products and Services.

1. INTRODUCTION

Reliance Jio launched its 4G Long Term Evolution (LTE) network services on September 5, 2016 in the Indian Telecom industry. With its profitable offers to customers where it had offered free sim in various retail outlets, the users of which will be entitled to using free 4G internet services, free voice calls and free sms for a period of 1 year, it gave a cut throat competition to already existing private and public players like Vodafone, Idea, Airtel and BSNL. Within three years of starting its commercial operations, Reliance Jio has become the country's largest telecom operator with a subscriber base of 331.3 million, surpassing Vodafone Idea with a decline in its user base to 320 million by June 2019. According to TRAI data, Jio had already surpassed Bharti Airtel in May to become the second largest mobile operator with 322.9 million users and 27.80 percent market share (economictimes.indiatimes article, July 28, 2019). Jio also launched bundle of applications for android and iphone users for their entertainment and convenience to access any information. Other telecom operators also are coming up with new marketing strategies to woo customers to subscribe to their network. Amidst this competitive environment what is important is the satisfaction of customers from their subscribed network operator, otherwise subscribers always has the option of Mobile Number Portability (MNP) open to them in case they are not fully satisfied. Thus, Jio though the largest telecom operator of the country may lose the hold of the market if it fails to satisfy its users. Satisfaction is the psychological state of the customers where their expectations meet their perceptions about the products and services. If the perception of the customer surpass its expectation or is equal to the expectation, the customer is said to be satisfied or vice-versa. Satisfaction can be measured on the basis of different variables.

2. PROBLEM STATEMENT

Reliance Jio has entered the market with a bang with all its lucrative offers and first of its type marketing strategy in the Telecom industry. It turned out to be a huge breakdown for other telecom companies resulting into loss of their customer base and major reduction in their market share. To face

this market threat posed by Reliance Jio other Telecom operators like Vodafone-Idea, Airtel, etc. released new plans to retain their customers. Vodafone-Idea merger was also the result of this strong competition from Jio. Amidst all this, customers were getting benefit of cheapest plans from their network service providers. But then Jio changed its marketing strategy and begin charging customers over their earlier all free services scheme. This shaken the trust of the customers and they started fearing exploitation by Reliance Jio in near future with high tariffs and costly plans. This proved to be true when recently Jio announced charges to be levied on calls made to non-Jio telecom users over and above the monthly or long term plans customer opts for. (economictimes.indiatimes article, October 11, 2019) This unstable pricing policy of Jio has created the need to study the level of satisfaction of Jio users from its products and services. Reliance Jio offers various products and services like Jio sim, Jio broadband, Jio DTH, etc. but here in the study satisfaction towards Jio sim products and services only has been measured.

3. REVIEW OF LITERATURE

Franklin and Ambika (2015) analyzed the influence of demographic variable and behavioral pattern of telecom users on level of satisfaction. The influence of the variables was evident and the results of the study suggested that BSNL should focus on their customer services and promotional strategies whereas other private players should focus on their network coverage. Comparative analysis of customer satisfaction from BSNL and other private players was also measured through following variables: network coverage, dealer's service, billing practice, tariff plan and rate, response to query, advertisement, promotional offers, access mode and economic viability.

Medhi (2017) observed in the study that majority customers were satisfied with Reliance Jio. But at the same time customers expected Jio to deal with its network coverage and calling congestion issues. Customers do not trust Jio lucrative marketing strategies completely and fear exploitation by Jio in future and as a safety they are continuing their old telecom services also.

Singh (2018) concluded in the study that nine factors strongly influence the attitude of customers towards Jio telecom. The extracted nine factors are reliability, responsiveness, fulfillment, perceived ease of use, effectiveness, advanced technology, price, social influence and performance expectancy. Study also proved the satisfaction of customers with Reliance Jio services and it was also found that maximum usage of Jio internet services had been made by the customers over calling and messaging services.

Sisili et al., (2018) found out in their study that customers were satisfied with Reliance Jio's free local and national SMS service and also experience excellent network in terms of error free SMS delivery & receipt, outdoor coverage, roaming services. Customers had also agreed that compared to the competitive network providers the speed of Jio's 4G broadband is better. But customers faced problems in accessing customer support services and getting new Jio connections.

4. OBJECTIVES OF THE STUDY

1) To know which feature of Jio Telecom mainly convinced customers to switch to it or to buy it.
2) To find out the maximum used service of Jio Telecom by customers.
3) To know about the maximum used Jio utility app by the customers.
4) To identify the level of customer satisfaction towards Jio products and services.
5) To know about the future expectations of customers from Jio.

5. METHODOLOGY

The design of the study is analytical in nature. A structured questionnaire has been used to collect primary data. Questionnaire is divided into three sections. Section-I includes questions on demographic profile of respondents and Section-II includes questions on behavioral profile and Section-III covers research variables to measure customer's satisfaction towards Jio asked on a five-point Likert scale where,

Highly Dissatisfied (HD) = 1, Dissatisfied (D) = 2, Neutral (N) = 3, Satisfied (S) = 4, Highly Satisfied (HS) = 5.

Dependent variable in the study is customer satisfaction and independent variables are Data plans, Data speed, Network coverage, Network strength, Video call quality, Voice call quality, Roaming services, Current prepaid and postpaid tariffs, Value added services, Jio utility apps, Schemes and offers, Value for money, Accessibility of Jio stores in the city, Friendly customer care services, and Quick redressal of complaints. The scope of the study is limited to Jio sim users only and does not study Jio fibre net users.

Data have been collected from 213 respondents through questionnaire approaching them personally. Customers who are above 15 years of age and are currently Jio users are selected as sample units in Surat City. Convenience sampling method has been adopted to select samples for the study in the selected research area.

6. DATA ANALYSIS AND INTERPRETATION

Respondent's demographic profile, their online buying experience and main findings of the study are discussed under the following sub-heads:

Table 1.1: Demographic profile of respondents

Variables	Frequency	Percent (%)	Variables	Frequency	Percent (%)
Gender			**Age (in years)**		
Male	131	61.5	15-25	187	87.8
Female	80	37.6	25-35	19	8.9
Transgender	2	0.9	35-45	5	2.3
Total	**213**	**100.0**	45 and above	2	0.9
			Total	**213**	**100.0**
Qualification			**Monthly Income**		
Secondary	2	0.9	Less than Rs. 10,000	34	16.0
Higher Secondary	100	46.9	Rs. 10,000 - Rs. 25,000	15	7.0
Graduate	73	34.3	Rs. 25,000 - Rs. 40,000	12	5.6
Post-Graduate	35	16.4	Above Rs. 40,000	10	4.7
Other	3	1.4	No Income	142	66.7
Total	**213**	**100.0**	**Total**	**213**	**100.0**
Occupation			**Experience of using Jio services**		
Student	176	82.6	Less than 12 months	46	21.6
Salaried	23	10.8	12 to 24 months	84	39.4
Self-employed	9	4.2	More than 24 months	83	39.0
Professional	3	1.4	**Total**	**213**	**100.0**
Retired	1	0.5	**Type of Jio connection**		
Housewife	0	0	Prepaid	193	90.6
Not currently employed	1	0.5	Postpaid	7	3.3
Other	0	0	Both	13	6.1
Total	**213**	**100.0**	**Total**	**213**	**100.0**

Table 1.1 shows the demographic profile of respondents. Out of 213 respondents, 131 are male, 80 are female and 2 are transgender. Majority 187 respondents belong to the age group of 15-25 years followed by 19 from 25-35 years age category. Majority 100 respondents are 12th passed followed by 73 graduates. Majority respondents do not have any source of income as majority respondents are students. Majority 84 respondents have been using Jio sim from 12 to 24 months. Out of 213 respondents, majority 193 respondents are prepaid sim user.

6.1 Feature of Jio telecom which mainly convinced customers to switch to it or buy it

Table 1.2: Major reason to switch to or buy Jio

Reason of switching to Jio or buying Jio	Frequency	%	Reason of switching to Jio or buying Jio	Frequency	%
Strong network connectivity	**87**	**40.8**	Strong customer support	22	10.3
Wide network coverage	53	24.9	Data speed	65	30.5
Schemes and offers	**103**	**48.4**	Easily accesible recharge outlets	27	12.7
Cost effective plans	**87**	**40.8**	Value Added Services	23	10.8
Cheaper data services	**96**	**45.1**	Jio Utility Apps	50	23.5
Goodwill	30	14.1	Others	0	0.0
Call charges and tariffs	51	23.9			

Figures in Table 1.2 reveal the major reason which influenced customers to buy Jio or to switch to it. Attractive schemes and offers with the highest frequency of 103 respondents out of 213 respondents followed by cheaper data services with 96 respondents, cost effective plans and strong network connectivity both having 87 respondents each among all others turned out to be the main reasons for customers to switch to Jio or to buy it.

6.2 Maximum used service of Jio telecom

Table 1.3: Maximum used service of Jio

Maximum used service of Jio	Frequency	%
Data Service	**146**	**68.5**
Calling Service	**41**	**19.3**
Messaging Service	4	1.9
Jio Utility Apps	17	8.0
Value Added Services	5	2.3
Total	**213**	**100.0**

Responses of the survey reveals that data services of Jio Telecom is maximum used by the customers as 146 respondents i.e. 68.5% out of total 213 respondents use majorly data services over other services of Jio. Though Jio is offering free unlimited calling to all Jio users and is charging nominal charges to calls made to non-Jio users but still the usage of calling services is comparatively lower than the usage of internet services. Calling service shows maximum usage only by 41 i.e. 19.3% respondents.

6.3 Maximum used Jio utility app by the customers

Table 1.4: Maximum used Jio utility app by the customers

Maximum used Jio utility app	Frequency	%	Maximum used Jio utility app	Frequency	%
My Jio	**127**	**59.6**	Jio Cloud	4	1.9
Jio Money	3	1.4	Jio Net	13	6.1
Jio TV	**95**	**44.6**	Jio Health Club	3	1.4
Jio Saavan	**78**	**36.6**	Xpress News	0	0
Jio Chat	7	3.3	Jio Security	7	3.3
Jio Cinema	**45**	**21.1**	Jio 4G Voice	29	13.6
Jio Newspaper	10	4.7	None of the above	20	9.4
Jio Mags	6	2.8			

Jio has launched numerous apps for android and ios users which can be freely downloaded by and used with a nominal charge by Jio users. Amongst all the apps considered in the study, My Jio is the maximum used app by the users as 127 respondents i.e. 59.6% out of total 213 respondents uses it

followed by next most used app Jio TV which is used by 95 respondents i.e. 44.6% out of total 213 respondents. Jio Saavan and Jio Cinema is also quite popular among Jio users after My Jio and Jio TV.

6.4 Customer satisfaction towards Jio products and services

H_0: There is no significant difference in observed and expected frequency of customer satisfaction.

H_1: There is a significant difference in observed and expected frequency of customer satisfaction.

Table 1.5: Customer satisfaction towards Jio products and services

Variables of customer satisfaction		HD	D	N	S	HS	Total
Data plans	Observed frequency	3	8	17	102	83	213
	%	1.4	3.8	7.9	47.9	39.0	100.0
	Chi-square test statistics	201.437 (0.000)					
Data speed	Observed frequency	14	14	49	92	44	213
	%	6.6	6.6	23.0	43.2	20.6	100.0
	Chi-square test statistics	96.695 (0.000)					
Network coverage	Observed frequency	11	17	38	97	50	213
	%	5.2	8.0	17.8	45.5	23.5	100.0
	Chi-square test statistics	110.075 (0.000)					
Network strength	Observed frequency	12	15	46	98	42	213
	%	5.6	7.0	21.6	46.0	19.7	100.0
	Chi-square test statistics	112.188 (0.000)					
Video call quality	Observed frequency	11	10	61	85	46	213
	%	5.2	4.7	28.6	39.9	21.6	100.0
	Chi-square test statistics	98.808 (0.000)					
Voice call quality	Observed frequency	8	11	42	91	61	213
	%	3.8	5.2	19.0	42.7	28.6	100.0
	Chi-square test statistics	114.488 (0.000)					
Roaming services	Observed frequency	8	9	41	107	48	213
	%	3.8	4.2	19.2	50.2	22.5	100.0
	Chi-square test statistics	152.704 (0.000)					
Current tariffs	Observed frequency	6	6	36	105	60	213
	%	2.8	2.8	16.9	49.3	28.2	100.0
	Chi-square test statistics	162.423 (0.000)					
Value Added Services	Observed frequency	5	7	52	97	52	213
	%	2.3	3.3	24.4	45.5	24.4	100.0
	Chi-square test statistics	136.554 (0.000)					
Utility apps	Observed frequency	6	8	50	87	62	213
	%	2.8	3.8	23.5	40.8	29.1	100.0
	Chi-square test statistics	115.944 (0.000)					
Schemes and offers	Observed frequency	5	7	32	91	78	213
	%	2.3	3.3	15.0	42.7	36.6	100.0
	Chi-square test statistics	149.981 (0.000)					
Value for money	Observed frequency	5	7	37	95	69	213
	%	2.3	3.3	17.4	44.6	32.4	100.0
	Chi-square test statistics	144.488 (0.000)					
Accessibility of Jio stores	Observed frequency	5	12	39	100	57	213
	%	2.3	5.6	18.3	46.9	26.8	100.0
	Chi-square test statistics	137.681 (0.000)					
Friendly	Observed frequency	8	10	46	96	53	213

customer care services	%	3.8	4.7	21.6	45.1	24.9	100.0
	Chi-square test statistics	122.798 (0.000)					
Quick redressal of complaints	Observed frequency	10	13	65	82	43	213
	%	4.7	6.1	30.5	38.5	20.2	100.0
	Chi-square test statistics	93.737 (0.000)					
Overall customer satisfaction	Observed frequency	10	14	32	96	61	213
	%	4.7	6.6	15.0	45.1	28.6	100.0
	Chi-square test statistics	121.671 (0.000)					

Table 1.5 reveals that for the statements asked on following variables of customer satisfaction data plans, data speed, network coverage, network strength, video call quality, voice call quality, roaming services, current tarrifs, value added services, utility apps, schemes and offers, value for money, accessibility of Jio stores, friendly customer care services, and quick redressal of complaints, majority of customers' are satisfied with the Jio products and services.

Moreover, the probability value for all the different variables considered for measurement of customer satisfaction is 0.000 which is less than significance level of 5%. This states that there is a significant difference in observed and expected frequency of satisfaction of customers towards Jio products and services in Surat City.

6.5 Future expectations of customers from Jio

The responses received from Jio users show that many customers expect Jio Telecom to work on expanding its network coverage and internet speed especially in remote areas and when the users are in roaming zones. Also, they expect company to work on improving its network strength in many parts of the Surat city as well, as they are facing poor network at many locations of the city. Other expectations include increasing data limit in the plans and reduction in current plan charges, follow-up of customer complaints and its quick resolution, increasing the data speed over and above the daily quota of high speed gets over. Quite good number of people expects Jio to launch 5G services soon and also to launch their own 4G and 5G phones at cheap prices.

7. Conclusion and suggestions

Findings of the study reveal that the major reason for customers to buy or shift to Jio is its schemes and offers followed by cheaper data services. Moreover, customers are moderately satisfied towards Jio products and services for all the studied variables namely data plans, data speed, network coverage, network strength, video call quality, voice call quality, roaming services, current prepaid and postpaid tariffs, value added services, jio utility apps, schemes and offers, value for money, accessibility of jio stores in the city, friendly customer care services, and quick redressal of complaints. The result of satisfaction shows that the main reason for which customers bought Jio, they are satisfied with that variable. It has been found that Jio users mainly use data services over and above other services offered the network provider. The maximum used Jio utility app from the bundle of apps Jio has launched is My Jio followed by Jio TV. Respondents also expect Jio to expand its network coverage and improve its network strength along with high data speed and reduction in tariffs. Thus, an important suggestion to the company on the basis of what their subscribers expects from them is that, they should stabilize their pricing policy and in future Jio should work on making its network better than now, to hold the position of the leader of the Telecom industry.

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M Commerce – Concept, Future and its Trend Beyond 2020

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ABSTRACT
The main purpose of this Book Chapter is to describe an overview of M Commerce. This Chapter Focuses on the Current Scenario of M Commerce in India.

M Commerce is the subset of e-commerce that includes all ecommerce transactions, carried out using a mobile device.

Mobile commerce, also referred as m-commerce, is the use of wireless handheld devices such as cellular phones and laptops to conduct commercial transactions online. Mobile commerce transactions continue to grow, and the term includes the purchase and sale of a wide range of products and services, such as online banking, bill payment and information delivery.

It is safe to say that M Commerce is an upgraded version of E Commerce. In fact, M Commerce has been defined as the conduct of e-commerce activities using mobile or cellular devices. If business transactions involve the use of wireless telecommunication networks, then it is highly likely to fall under M Commerce.

Online retailers' growing reach in town and cities beyond metros is driven by an increasing in usage of mobile internet in the country. Increased ownership of smartphones is helping more Indians access shopping websites easily. Number of smartphone users in India expected to rise by 84 per cent to 859 million by 2022 from 468 million in 2017. In FY2019, Out of total internet subscribers, 93.39 per cent of subscribers used internet service through mobiles.

Secondary data has been collected from multiple sources of evidence, in addition to books, journals, websites, and newspapers.

Keywords: Challenges, E Commerce, M Commerce, Payment, Security and Smartphone.

1. OBJECTIVES

After studying this chapter, the reader will understand

- Meaning of M Commerce
- Concept of M Commerce
- E Commerce Vs M Commerce
- History of M Commerce
- Advantages of M Commerce
- Disadvantages of M Commerce
- The Most Common Products and Services on M Commerce
- Types of M Commerce Applications
- Future of M Commerce
- Challenges of M Commerce apps for business owners (Companies)
- M Commerce Trends for 2020 and Beyond
- M Commerce applications examples.

2. INTRODUCTION TO M COMMERCE

M Commerce is the subset of E Commerce that includes all ecommerce transactions, carried out using a mobile device.

M Commerce, also referred as Mobile Commerce, is the use of wireless handheld devices such as cellular phones and laptops to conduct commercial transactions online. M Commerce transactions continue to grow, and the term includes the purchase and sale of a wide range of products and services, such as online banking, bill payment and information delivery.

It is safe to say that M Commerce is an upgraded version of E Commerce. In fact, M Commerce has been defined as the conduct of E Commerce activities using mobile or cellular devices. If business transactions involve the use of wireless telecommunication networks, then it is highly likely to fall under M Commerce.

M Commerce is an advanced technology of E Commerce. The time and space limitation are removed and we can access any time we need. Through M Commerce, we can improve the wide range of productivity. In short, M Commerce is defined as the buying and selling of products and services through the use of wireless mobile devices. M Commerce is considered the next generation of ECommerce and this particular technology will allow users to shop through Internet without a plug-in terminal. As a form of E Commerce, M Commerce enables users to access online shopping platforms without needing to use a desktop computer. Examples of M Commerce include in-app purchasing, mobile banking, virtual marketplace apps like the Amazon mobile app or a digital wallet such as Apple Pay, Android Pay and Samsung Pay.

3. CONCEPT OF M COMMERCE

- M Commerce refers to wireless electronic commerce used in the applications of commerce or business through a handy device like cellular phone or Personal Digital Assistant (PDAs). It is also said be the next generation wireless e-commerce that needs no wire and plug-in devices. Mobile commerce is usually called as 'm-Commerce' in which user can do any sort of transaction including buying and selling of the goods, asking any services, transferring the ownership or rights, transacting and transferring the money by accessing wireless internet service on the mobile handset itself.
- The next generation of commerce would most probably be mobile commerce or M Commerce. Based on its wide potential reach, all major mobile handset manufacturing companies are making WAP (Wireless Application Protocol) enabled smart phones and providing the maximum wireless internet and web facilities covering personal, official and commerce requirement to pave the way of M Commerce that would later be very fruitful for them.
- Mobile Commerce (also known as M Commerce or U-commerce) is the ability to do commerce application, using a mobile device.

In an academic definition it is characterized in the following terms:

- M Commerce is any transaction, involving the transfer of ownership or right to use goods and services, which is initiated and or completed by using mobile access to computer- mediated networks with the help of an electronic device.
- M Commerce is the buying and selling of goods and services through wireless handset devices.
- M Commerce is the process of paying for services using a mobile phone.
- M Commerce is the use of mobile devices to communicate, inform transact and entertain using text and data via a connection to public and private networks.

4. E Commerce Vs M Commerce

Particulars	E Commerce	M Commerce
Existence	1970s	Invented later during the 1990s
Reach	Narrower	Large number of mobile users globally
Cost	Generally a less costly method. The set up of the website and the use of the internet is both relatively cheaper methods.	More expensive due to the creation of the mobile app and the need to use cellular data (for the customers)
Business Environment	Superset	Subset
Device Used	Primarily Desktops and Laptops	Smartphones, Personal Digital Assistants (PDAs), Tablets and Hybrid Devices.
Payment Modes	Credit/ Debit Cards, Net Banking, Gift Coupons and Promo Codes, etc.	Same as E Commerce. Also Includes Digital Wallets, Mobile Wallet and In-app payments.
Technology	Web technologies like PHP, HTML, and Mobile responsive websites.	Mobile applications developed on Android iOS, Windows, PhoneGap, cross-platforms, etc.
Networks	TCP/IP & Fixed Wire line Internet	GSM, GSM/GPRS, TDMA, CDMA, CDPD, paging networks
Browser	Microsoft Explorer, Netscape	Phone.com UP Browser, Nokia browser, MS Mobile Explorer and other micro browsers
Operating System	Windows, Unix, Linux	Symbian (EPOC), PalmOS, Pocket PC, proprietary platforms.

Source: https://keydifferences.com/difference-between-e-commerce-and-m-commerce.html

5. HISTORY OF M COMMERCE

Mobile commerce popularly known as m-commerce is actually just a subset of e-commerce. The term itself was coined by Kevin Duffy in the year 1997.

- M Commerce has been in existence since 1997. Initially, it was limited to buying ringtones and paying services through text messages. In 1999, the first browsing-like mobile applications were introduced in Japan, and the most important one was i-Mode.
- In 2003, De Bijenkorf, a Dutch department store chain, introduced/ launched the first sales campaign via text messages. Customers could register online, providing their bank account details and delivery address. During their 3 days of campaigning they received 9 text messages per day with special offers. By replying with "yes <special offer number>" the article could be bought. Actual payment was done via bank transfer.
- In later years, browsing became possible on mobile phones. However, mobile screens were very small and the websites were rarely optimized for small screens. Resulting in limited success of M Commerce. The actual breakthrough of M Commerce came by the introduction of iPhone. The apps were designed for M Commerce Applications, resulting mobile usage made it easier to interact online using a small screen.
- The future of M Commerce looks extremely bright because several experiments are going on to introduce the upgraded version of mobile likely to emerged with the evolution of 5G mobile technology.

6. ADVANTAGES OF M COMMERCE

- Ubiquity: The use of wireless device enables the user to receive information and do transactions anywhere, at anytime.

- M Commerce is a very convenient and easy to use system to do and control business transactions.
- M Commerce has a very wide reach. A huge part of the world's population has a mobile phone in their pocket. So the total size of the market is huge and tremendous.
- M Commerce also helps businesses target customers according to their location, Service Provider, Type of Device they use and also various other criteria. Thus a good tool for Marketing.
- Reduction in costs for any company, due to the streamlined processes, transaction cost, low carrying cost and low order processing cost.
- More convenience for customers in comparing prices, reading reviews and making purchases without the need of a desktop computer.
- Wider variety of products and services.

7. DISADVANTAGES OF M COMMERCE

- With the existing technology, to set up an M Commerce business is very expensive. Leading to start-up costs and many complications also arise.
- Networks and Service Providers are not reliable in developing countries and are not suitable for data transfer.
- Finally, the issue of security. There are many concerns about the safety of the customer's private information. And the possibility of a data leak is very daunting.
- Slow speed and Limited for longer message.
- Mobile screen size is small (5 to 8 inch Screen).

8. THE MOST COMMON PRODUCTS AND SERVICES ON M COMMERCE

- Mobile banking.
- Mobile browsing and purchase.
- Mobile content purchase and delivery.
- Mobile ATM.
- Mobile money transfers.
- Information and location-based services.
- Mobile advertising.
- Mobile ticketing, vouchers and coupons.

9. Types of M Commerce Applications

M Commerce applications cover a broader range of transaction options.

- **Mobile shopping** – This type of M Commerce implementation is most similar to E Commerce, only accessible through a mobile device. Businesses that want to enter the mobile scene develop mobile-optimized websites, invest in dedicated apps, or take their sales through social media platforms like Facebook or Instagram that allow in-app purchases or linking to online stores.
- **Mobile banking** – Mobile banking is quite similar to online banking. However, some transactions might be restricted or limited on mobile devices. Mobile banking is a type of implementation that usually involves a dedicated application – though some financial services companies, experimenting with innovations like chatbots or messaging apps to deliver customer service. Most of the time, mobile banking with dedicated application brings customers an excellent experience and high security.

- **Mobile payments** – This type of M Commerce focuses on the progressive innovation in mobile payment options realized with mobile devices available to consumers. Today consumers can take advantage of many diverse mobile payment options that go way beyond mobile wallets.
- **Mobile Ticketing and Booking** –This type of M Commerce focuses on making bookings and receiving your tickets on the mobile. The digital ticket or boarding pass is sent directly to your phone after you make the payment from it. Even in India now IRTC and other services provide m-ticketing services.
- **E-bills –** This includes mobile vouchers, mobile coupons to be redeemed and even loyalty points or cards system.
- **Auctions –** Online auctions having now been developed to be made available via mobile phones as well.
- **Stock Market Reports and Stock Market trading over mobile applications.**

10. FUTURE OF M COMMERCE

M Commerce is a rapidly expanding and has seen unprecedented growth during the last decade. New technologies and mobile trends emerge practically every year, while others becoming obsolete. Moreover, new developments in the fields like artificial intelligence (AI) or the Internet of Things (IoT) allow developers to build more M Commerce applications.

In fact, the emergence of M Commerce technologies to our life brought entirely new services and industries such as mobile banking, contactless payments, location-based services, mobile boarding passes, and many more.

M Commerce applications have gained momentum and companies are investing in apps based on the following:

- Provide better user experience,
- Through mobile analytics it allows tracking of user behavior easily.
- Personalized experience and product recommendations offers are easy,
- Enables direct communication with push notifications and opens new marketing channels.
- Elevates the experience of customers shopping using Augmented Reality (AR) technologies.
- Advantage of hardware features that bring even more personalized experience – for instance, using the customer's real-time location.

Mobile Users have high expectations from Mobile Web World with a requirement of mobile websites to load as faster as the desktop website. Mobile Internet in India will be more secure and faster. M Commerce in India is likely to do better than e-commerce as a choice for digital commerce transactions. Number of smartphone users in India expected to rise by 84 per cent to 859 million by 2022 from 468 million in 2017. In FY2019, Out of total internet subscribers, 93.39 per cent of subscribers used internet service through mobiles. Out of which more than 50% the Smart Phone users in India search for local information over Mobile Internet. Online retailers' growing reach in town and cities beyond metros is driven by an increasing in usage of mobile internet in the country. Increased ownership of smartphones is helping more Indians access shopping websites easily.

11. CHALLENGES OF M COMMERCE APPS FOR BUSINESS OWNERS (COMPANIES)

Some challenges that are faced by business owners using M Commerce Apps are

- **High competition:** M Commerce is on the rise, and companies across all sectors are now turning their attention to the mobile marketplace. While there are many customers waiting on the mobile end of technology, similarly many companies are doing the exact same thing. To be competitive, Companies application needs to deliver a unique user experience and offer its users the exact features that they want to drive engagement.

- **Privacy concerns:** Consumers who download mobile apps are aware that companies that provide them are going to track their behaviors and collect data. Which becomes the higher responsibility of companies to protect it? Hence it's smart to team up with a mobile development team experienced in building such apps. Thus the team will provide the customer and companies with a foolproof product protected against all possible threats.
- **Excluding brick-and-mortar stores:** Some companies that focus on M Commerce forget about their physical locations. To avoid this risk, it's better to combine the digital and physical space. Thus by offering consumers an application that assists them while shopping. **Esize.me** is a great example of that. Some shopping apps allow consumers to amplify their shopping experience by offering personalized promotions and discounts inside brick-and-mortar stores.

Despite these challenges, M Commerce offers many advantages to businesses.

12. M COMMERCE TRENDS FOR 2020 AND BEYOND

M Commerce has seen a meteoric rise in popularity recently, with an increasing number of consumers reaching for their smartphones when looking to shop online. Since M Commerce is predicted to overtake E Commerce in the coming years, e-retailers should be aware for the shift that is likely to encounter through 2020 and beyond.

- **Intelligent Site-Search:** Site-search has been an indispensable part of E Commerce websites for quite long time, but it plays a vital role in M Commerce. Navigating thousands of products on mobile isn't an easy task as that on a desktop – there's only little that can fit on a 5/ 8-inch screen – thus users tend to reach for the search bar when shopping on mobile sites. It's crucial that site-search experience is smart enough to deliver perfectly matched results and faster.
- **Chatbots:** The most common use of smartphones is fast communication. From Facebook Messenger and Instagram Chat, to WhatsApp and Telegram, people rely on apps to stay in touch with their friends, families, and workmates every day. Businesses, realized the potential of communicating with their customers via these services. Brands like H&M, Nike, and eBay have developed Artificial Intelligence (AI) based chatbots that can talk to customers as we do with our friends. Thus an excellent way of building brand loyalty, and useful for their customers. They can keep tracking of their orders, ask for recommendations, and contact customer services, all from one place.
- **Social Commerce:** The number of social media users worldwide, expected to reach 2.96 billion by 2020. According to eMarketer, 53.1% of users will be using only mobile by 2020 and is rapidly rising to 54.2% in 2021.
- **Augmented Reality:** Augmented Reality (AR) is a technology that uses smartphone cameras to transpose digital content into the real world. While this sounds like something ripped straight from a science fiction novel, the technology works and harness by brands which seem to be impossible a few years ago. Swedish furniture company, IKEA, allows its customers to visualize how furniture will look at their homes, sizing products to scale before providing the choice of buying through their innovative 'Place' app. Similarly, glasses e-retailer, Eyerim, lets its customers try on their new favourite specs from the comfort of their own home with its 'virtual mirror' feature. The benefits of AR for e-retailers are numerous. First and foremost, it gives customers a chance to spend time with products as they would be in a brick-and-mortar store. It means they feel more comfortable parting with their cash as they can be confident that the product that is offered is exactly the same what they are looking for. Although AR is definitely a way off being ubiquitous, e-retailers have started thinking about technology down the road and reap the rewards by doing so in the future.
- **Instant Checkouts:** Number of consumers using payment apps like Apple Pay, Google Pay and PayPal is in increasing trend and people have grown comfortable with the idea of making mobile payments. Growth of M Commerce is possible only due to e-retailers allowing customers to checkout using one of these handy payment apps. Instant Checkouts process saves time of the

customer. M Commerce site also make the customer's journey easier and comfort with Instant checkouts process, thus ensuring future proof.

- **Speedy Loading Times for Mobile:** A study by Google found that 53% of mobile users will abandon a site that takes more than 3 seconds to load. E-retailer has to build their website that is mobile friendly for the customer to stay sound in this competitive world. Super-fast innovations such as 5G are becoming a fully-fledged and highly-desired by consumers in 2020, businesses should be clear that the present modern day shoppers want E Commerce experiences to match. If a customer has a mobile connection that works at lightning speed and website is super-slow on mobile, then it has created a barrier for a purchase for the customer. E-tailers should ensure consumers can explore a website, find the products that they need and make purchases easily, all using a mobile device.

13. M COMMERCE APPLICATIONS EXAMPLES

Five examples of outstanding M Commerce applications that offer excellent examples, they are:

(i) Amazon is one of the largest online marketplaces in the world, featuring hundreds of thousands of items on sale. Packing all of its content into a user-friendly and intuitive app is a challenging one. Amazon's M Commerce app is light and fast, allowing its users to search and filter a wide range of products using various parameters with just a few clicks.

(ii) The global coffee shop chain created its app primarily to enable mobile payments and boost their loyalty program. Customers can add funds to their loyalty card and use their phones to buy drinks at Starbucks coffee shops. They can earn loyalty points on the go and then exchange them for free refills or snacks. The app also takes advantage of Geo-location services and helps users to locate nearby stores quickly.

(iii) Uber might not be the first thing that pops into your mind while thinking about M Commerce, but this leading on-demand car service app is, in fact, a great example of M Commerce capabilities. By connecting riders with drivers, the app uses GPS technology to access the progress of the car on its way. It also allows users to compare different vehicle types and pay for rides using their mobile wallets. After completing the ride, both the driver and the passenger can rate one another and leave their feedback.

(iv) International cosmetics and beauty retailer operates almost 2000 retail stores across 30 countries all over the world. Sephora launched its digital transformation journey sometimes ago. The brand's mobile app plays a critical role in the company's marketing strategy today. The app offers a memorable digital experience, making shopping fun and quick. For example, it features an integrated loyalty card and personalized alerts about offers available in the store. Moreover, users can scan products for ratings and reviews while shopping in Sephora stores. Finally, the app features an amazing Augmented Reality (AR) functionality that allows app users to try on different makeup products from their mobile device with Sephora Visual Artist.

(v) The UK-based global fashion retailer offers thousands of products in its mobile app. Sometimes ago, ASOS (Discover Fashion Online) revamped the app experience to make it more attractive to customers. The brand managed to do it so successfully that consumers now spend 80 minutes per month on average in the ASOS app (Famous Online Clothing Store - Shopping). One of the most interesting features is the style match functionality, a visual search tool that enables users to find similar items quickly. They need to take a picture or upload a reference photo, and the app will show the closest results among the brand's extensive stock. The mobile app can analyze the pattern, color, and texture from the image and make satisfactory recommendations to users.

14. CONCLUSION

- M Commerce implementation is most similar to E Commerce, only accessible through a mobile device. Thus the future of E Commerce is with mobile.

- M Commerce is an advanced technology of E Commerce. The time and space limitation are removed and we can access any time we need. Through M Commerce, we can improve the wide range of productivity.
- M Commerce is a rapidly expanding and has seen unprecedented growth during the last decade. New technologies and mobile trends emerge practically every year, while others becoming obsolete. Moreover, new developments in the fields like artificial intelligence (AI) or the Internet of Things (IoT) allow developers to build more M Commerce applications. One thing is clear: businesses that don't take advantage of the growing M Commerce market will limit their opportunities from growth and success.
- E-retail sites are designed taking mobile into consideration/mind, M Commerce makes shopping faster and easy for customers while proving hugely lucrative for their business.
- M Commerce is becoming one of the most powerful consumer trends in 2020 and beyond. More than 3 billion people around the world presently use smartphones to go online every day. And mobile shopping is going to drive even more conversions in the near future.
- M Commerce apps offer excellent shopping experiences for customers, in turn gathering data about their buying habits and preferences. M Commerce apps provide companies with new sales and marketing options as a whole.
- M Commerce is on the rise, and companies across all sectors are now turning their attention to the mobile marketplace leading to high competitions in the market.
- M Commerce in India is likely to do better than e-commerce as a choice for digital commerce transactions. Number of smartphone users in India expected to rise by 84 per cent to 859 million by 2022 from 468 million in 2017. In FY2019, out of total internet subscribers, 93.39 per cent of subscribers used internet service through mobiles. Out of which more than 50% the Smart Phone users in India search for local information over Mobile Internet. Online retailers' growing reach in town and cities beyond metros is driven by an increasing in usage of mobile internet in the country. Increased ownership of smartphones is helping more Indians access shopping websites easily.

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Role of Digital Marketing in Moderen Marketing Era

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Abstract
Digital Marketing is the very important component of modern marketing tools to utilizes internet and online based digital technologies such as desktop computers, mobile phones and other digital media and platforms to promote products and services. Its development during the 1990s and 2000s changed the way brands and businesses use technology for marketing. As digital platforms became increasingly incorporated into marketing plans and everyday life,[1] and as people increasingly use digital devices instead of visiting physical shops, digital marketing campaigns have become prevalent, employing combinations of search engine optimization (SEO), search engine marketing (SEM), content marketing, influencer marketing, content automation, campaign marketing, data-driven marketing, e-commerce marketing, social media marketing, social media optimization, e-mail direct marketing, display advertising, e–books, and optical disks and games have become commonplace. Digital marketing extends to non-Internet channels that provide digital media, such as television, mobile phones (SMS and MMS), callback, and on-hold mobile ring tones. The extension to non-Internet channels differentiates digital marketing from marketing.

Introduction

The development of digital marketing is inseparable from technology development. One of the key points in the start of was in 1971, where Ray Tomlinson sent the very first email and his technology set the platform to allow people to send and receive files through different machines. However, the more recognisable period as being the start of Digital Marketing is 1990 as this was where the Archie search engine was created as an index for FTP sites. In the 1980s, the storage capacity of computer was already big enough to store huge volumes of customer information. Companies started choosing online techniques, such as database marketing, rather than limited list broker. These kinds of databases allowed companies to track customers' information more effectively, thus transforming the relationship between buyer and seller. However, the manual process was not as efficient.

In the 1990s, the term *Digital Marketing* was first coined, with the debut of server/client architecture and the popularity of personal computers, the Customer Relationship Management (CRM) applications became a significant factor in marketing technology. Fierce competition forced vendors to include more service into their software, for example, marketing, sales and service applications. Marketers were also able to own huge online customer data by eCRM software after the Internet was born. Companies could update the data of customer needs and obtain the priorities of their experience. This led to the first clickable banner ad being going live in 1994, which was the **"You Will"** campaign by AT&T and over the first four months of it going live, 44% of all people who saw it clicked on the ad.

In the 2000s, with increasing numbers of Internet users and the birth of iPhone, customers began searching products and making decisions about their needs online first, instead of consulting a salesperson, which created a new problem for the marketing department of a company. In addition, a survey in 2000 in the United Kingdom found that most retailers had not registered their own domain address. These problems encouraged marketers to find new ways to integrate digital technology into market development.

In 2007, marketing automation was developed as a response to the ever evolving marketing climate. Marketing automation is the process by which software is used to automate conventional marketing

processes. Marketing automation helped companies' segment customers, launch multichannel marketing campaigns, and provide personalized information for customers. However, the speed of its adaptability to consumer devices was not fast enough.

Digital marketing became more sophisticated in the 2000s and the 2010s, when the proliferation of devices' capable of accessing digital media led to sudden growth. Statistics produced in 2012 and 2013 showed that digital marketing was still growing. With the development of social media in the 2000s, such as LinkedIn, Facebook, YouTube and Twitter, consumers became highly dependent on digital electronics in daily lives. Therefore, they expected a seamless user experience across different channels for searching product's information. The change of customer behavior improved the diversification of marketing technology.

Digital marketing is also referred to as 'online marketing', 'internet marketing' or 'web marketing'. The term *digital marketing* has grown in popularity over time. In the USA *online marketing* is still a popular term. In Italy, digital marketing is referred to as *web marketing*. Worldwide *digital marketing* has become the most common term, especially after the year 2013.

Digital media growth was estimated at 4.5 trillion online ads served annually with digital media spend at 48% growth in 2010. An increasing portion of advertising stems from businesses employing Online Behavioural Advertising (OBA) to tailor advertising for internet users, but OBA raises concern of consumer privacy and data protection.

New non-linear marketing approach

To engage customers retailers have shifted from the linear marketing approach of one-way communication to a value exchange model of mutual dialogue and benefit-sharing between provider and consumer. Exchanges are more non-linear, free flowing, and both one-to-many or one-on-one. The spread of information and awareness can occur across numerous channels, such as the blogosphere, YouTube, Facebook, Instagram, Snapchat, Pinterest, and a variety of other platforms. Online communities and social networks allow individuals to easily create content and publicly publish their opinions, experiences, and thoughts and feelings about many topics and products, hyper-accelerating the diffusion of information.

The Nielsen Global Connected Commerce Survey conducted interviews in 26 countries to observe how consumers are using the Internet to make shopping decisions in stores and online. Online shoppers are increasingly looking to purchase internationally, with over 50% in the study who purchased online in the last six months stating they bought from an overseas retailer.

Using an omni-channel strategy is becoming increasingly important for enterprises who must adapt to the changing expectations of consumers who want ever-more sophisticated offerings throughout the purchasing journey. Omni-channel retailing involves analyzing consumer behavior from a broad perspective, and studying what influences buying habits.[29] Retailers are increasingly focusing on their online presence, including online shops that operate alongside existing store-based outlets. The "endless aisle" within the retail space can lead consumers to purchase products online that fit their needs while retailers do not have to carry the inventory within the physical location of the store. Solely Internet-based retailers are also entering the market; some are establishing corresponding store-based outlets to provide personal services, professional help, and tangible experiences with their products.

An omni-channel approach not only benefits consumers but also benefits business bottom line: Research suggests that customers spend more than double when purchasing through an omni-channel retailer as opposed to a single-channel retailer, and are often more loyal. This could be due to the ease of purchase and the wider availability of products.

Customers are often researching online and then buying in stores and also browsing in stores and then searching for other options online. Online customer research into products is particularly popular for higher-priced items as well as consumable goods like groceries and makeup. Consumers are increasingly using the Internet to look up product information, compare prices, and search for deals and promotions.

Use in the digital era

There are a number of ways brands can use digital marketing to benefit their marketing efforts. The use of digital marketing in the digital era not only allows for brands to market their products and services, but also allows for online customer support through 24/7 services to make customers feel supported and valued.

The use of social media interaction allows brands to receive both positive and negative feedback from their customers as well as determining what media platforms work well for them. As such, digital marketing has become an increased advantage for brands and businesses. It is now common for consumers to post feedback online through social media sources, blogs and websites on their experience with a product or brand. It has become increasingly popular for businesses to use and encourage these conversations through their social media channels to have direct contact with the customers and manage the feedback they receive appropriately.

Word of mouth communications and peer-to-peer dialogue often have a greater effect on customers, since they are not sent directly from the company and are therefore not planned. Customers are more likely to trust other customers' experiences. Examples can be that social media users share food products and meal experiences highlighting certain brands and franchises. This was noted in a study on Instagram, where researchers observed that adolescent Instagram user' posted images of food-related experiences within their social networks, providing free advertising for the products.

It is increasingly advantageous for companies to use social media platforms to connect with their customers and create these dialogues and discussions. The potential reach of social media is indicated by the fact that in 2015, each month the Facebook app had more than 126 million average unique users and YouTube had over 97 million average unique users.

Brand awareness

Ease of access

A key objective is engaging digital marketing customers and allowing them to interact with the brand through servicing and delivery of digital media. Information is easy to access at a fast rate through the use of digital communications. Users with access to the Internet can use many digital mediums, such as Facebook, YouTube, Forums, and Email etc. Through Digital communications it creates a multi-communication channel where information can be quickly shared around the world by anyone without any regard to who they are. Social segregation plays no part through social mediums due to lack of face to face communication and information being wide spread instead to a selective audience. This interactive nature allows consumers create conversation in which the targeted audience is able to ask questions about the brand and get familiar with it which traditional forms of Marketing may not offer.

Competitive advantage

By using Internet platforms, businesses can create competitive advantage through various means. To reach the maximum potential of digital marketing, firms use social media as its main tool to create a channel of information. Through this a business can create a system in which they are able to pinpoint behavioral patterns of clients and feedback on their needs. This means of content has shown to have a larger impingement on those who have a long-standing relationship with the firm and with consumers who are relatively active social media users. Relative to this, creating a social media page will further increase relation quality between new consumers and existing consumers as well as consistent brand reinforcement therefore improving brand awareness resulting in a possible rise for consumers up the Brand Awareness Pyramid. Although there may be inconstancy with product images; maintaining a successful social media presence requires a business to be consistent in interactions through creating a two way feed of information; firms consider their content based on the feedback received through this channel, this is a result of the environment being dynamic due to the global nature of the internet.[35] Effective use of digital marketing can result in relatively lowered costs in relation to traditional means of marketing; Lowered external service costs, advertising costs, promotion costs, processing costs, interface design costs and control costs.

Effectiveness

Brand awareness has been proven to work with more effectiveness in countries that are high in uncertainty avoidance, also these countries that have uncertainty avoidance; social media marketing works effectively. Yet brands must be careful not to be excessive on the use of this type of marketing, as well as solely relying on it as it may have implications that could negatively harness their image. Brands that represent themselves in an anthropomorphizing manner are more likely to succeed in situations where a brand is marketing to this demographic. "Since social media use can enhance the knowledge of the brand and thus decrease the uncertainty, it is possible that people with high uncertainty avoidance, such as the French, will particularly appreciate the high social media interaction with an anthropomorphized brand." Moreover, digital platform provides an ease to the brand and its customers to interact directly and exchange their motives virtually.

Developments and strategies

One of the major changes that occurred in traditional marketing was the "emergence of digital marketing" (Patrutiu Baltes, Loredana, 2015), this led to the reinvention of marketing strategies in order to adapt to this major change in traditional marketing (Patrutiu Baltes, Loredana, 2015).

As digital marketing is dependent on technology which is ever-evolving and fast-changing, the same features should be expected from digital marketing developments and strategies. This portion is an attempt to qualify or segregate the notable highlights existing and being used as of press time.

- **Segmentation**: More focus has been placed on segmentation within digital marketing, in order to target specific markets in both business-to-business and business-to-consumer sectors.
- **Influencer marketing**: Important nodes are identified within related communities, known as influencers. This is becoming an important concept in digital targeting. Influencers allow brands to take advantage of social media and the large audiences available on many of these platforms. It is possible to reach influencers via paid advertising, such as Facebook Advertising or Google Adwords campaigns, or through sophisticated sCRM (social customer relationship management) software, such as SAP C4C, Microsoft Dynamics, Sage CRM and Salesforce CRM. Many universities now focus, at Masters level, on engagement strategies for influencers.

To summarize, Pull digital marketing is characterized by consumers actively seeking marketing content while Push digital marketing occurs when marketers send messages without that content being actively sought by the recipients.

- **Online behavioural advertising** is the practice of collecting information about a user's online activity over time, "on a particular device and across different, unrelated websites, in order to deliver advertisements tailored to that user's interests and preferences.
- **Collaborative Environment**: A collaborative environment can be set up between the organization, the technology service provider, and the digital agencies to optimize effort, resource sharing, reusability and communications.[43] Additionally, organizations are inviting their customers to help them better understand how to service them. This source of data is called User Generated Content. Much of this is acquired via company websites where the organization invites people to share ideas that are then evaluated by other users of the site. The most popular ideas are evaluated and implemented in some form. Using this method of acquiring data and developing new products can foster the organizations relationship with their customer as well as spawn ideas that would otherwise be overlooked. UGC is low-cost advertising as it is directly from the consumers and can save advertising costs for the organisation.
- **Data-driven advertising:** Users generate a lot of data in every step they take on the path of customer journey and Brands can now use that data to activate their known audience with data-driven programmatic media buying. Without exposing customers' privacy, users' Data can be collected from digital channels (e.g.: when customer visits a website, reads an e-mail, or launches and interact with brand's mobile app), brands can also collect data from real world customer interactions, such as brick and mortar stores visits and from CRM and Sales engines datasets.

Also known as People-based marketing or addressable media, Data-driven advertising is empowering brands to find their loyal customers in their audience and deliver in real time a much more personal communication, highly relevant to each customers' moment and actions.

An important consideration today while deciding on a strategy is that the digital tools have democratized the promotional landscape.

- **Remarketing:** Remarketing plays a major role in digital marketing. This tactic allows marketers to publish targeted ads in front of an interest category or a defined audience, generally called searchers in web speak, they have either searched for particular products or services or visited a website for some purpose.
- **Game advertising**: Game ads are advertisements that exist within computer or video games. One of the most common examples of in-game advertising is billboards appearing in sports games. In-game ads also might appear as brand-name products like guns, cars, or clothing that exist as gaming status symbols.

The new digital era has enabled brands to selectively target their customers that may potentially be interested in their brand or based on previous browsing interests. Businesses can now use social media to select the age range, location, gender and interests of whom they would like their targeted post to be seen by. Furthermore, based on a customer's recent search history they can be 'followed' on the internet so they see advertisements from similar brands, products and services, This allows businesses to target the specific customers that they know and feel will most benefit from their product or service, something that had limited capabilities up until the digital era.

Ineffective forms of digital marketing

Digital marketing activity is still growing across the world according to the headline global marketing index. A study published in September 2018, found that global outlays on digital marketing tactics are approaching $100 billion. Digital media continues to rapidly grow; while the marketing budgets are expanding, traditional media is declining (World Economics, 2015). Digital media helps brands reach consumers to engage with their product or service in a personalised way. Five areas, which are outlined as current industry practices that are often ineffective are prioritizing clicks, balancing search and display, understanding mobiles, targeting, viewability, brand safety and invalid traffic, and cross-platform measurement (Whiteside, 2016). Why these practices are ineffective and some ways around making these aspects effective are discussed surrounding the following points.

Prioritizing clicks

Prioritizing clicks refers to display click ads, although advantageous by being 'simple, fast and inexpensive' rates for display ads in 2016 is only 0.10 percent in the United States. This means one in a thousand click ads are relevant therefore having little effect. This displays that marketing companies should not just use click ads to evaluate the effectiveness of display advertisements (Whiteside, 2016).

Balancing search and display

Balancing search and display for digital display ads are important; marketers tend to look at the last search and attribute all of the effectiveness to this. This, in turn, disregards other marketing efforts, which establish brand value within the consumers mind. ComScore determined through drawing on data online, produced by over one hundred multichannel retailers that digital display marketing poses strengths when compared with or positioned alongside, paid search (Whiteside, 2016). This is why it is advised that when someone clicks on a display ad the company opens a landing page, not its home page. A landing page typically has something to draw the customer in to search beyond this page. Things such as free offers that the consumer can obtain through giving the company contact information so that they can use retargeting communication strategies (Square2Marketing, 2012). Commonly marketers see increased sales among people exposed to a search ad. But the fact of how many people you can reach with a display campaign compared to a search campaign should be considered. Multichannel retailers have an increased reach if the display is considered in synergy with search campaigns. Overall both search and display aspects are valued as display campaigns build

awareness for the brand so that more people are likely to click on these digital ads when running a search campaign (Whiteside, 2016).

Understanding Mobiles: Understanding mobile devices is a significant aspect of digital marketing because smart phones and tablets are now responsible for 64% of the time US consumers are online (Whiteside, 2016). Apps provide a big opportunity as well as challenge for the marketers because firstly the app needs to be downloaded and secondly the person needs to actually use it. This may be difficult as 'half the time spent on smartphone apps occurs on the individuals single most used app, and almost 85% of their time on the top four rated apps' (Whiteside, 2016). Mobile advertising can assist in achieving a variety of commercial objectives and it is effective due to taking over the entire screen, and voice or status is likely to be considered highly; although the message must not be seen or thought of as intrusive (Whiteside, 2016). Disadvantages of digital media used on mobile devices also include limited creative capabilities, and reach. Although there are many positive aspects including the users entitlement to select product information, digital media creating a flexible message platform and there is potential for direct selling (Belch & Belch, 2012).

Cross-platform measurement: The number of marketing channels continues to expand, as measurement practices are growing in complexity. A cross-platform view must be used to unify audience measurement and media planning. Market researchers need to understand how the Omni-channel affects consumer's behaviour, although when advertisements are on a consumer's device this does not get measured. Significant aspects to cross-platform measurement involves deduplication and understanding that you have reached an incremental level with another platform, rather than delivering more impressions against people that have previously been reached (Whiteside, 2016). An example is 'ESPN and comScore partnered on Project Blueprint discovering the sports broadcaster achieved a 21% increase in unduplicated daily reach thanks to digital advertising' (Whiteside, 2016). Television and radio industries are the electronic media, which competes with digital and other technological advertising. Yet television advertising is not directly competing with online digital advertising due to being able to cross platform with digital technology. Radio also gains power through cross platforms, in online streaming content. Television and radio continue to persuade and affect the audience, across multiple platforms (Fill, Hughes, & De Franceso, 2013).

Targeting, viewability, brand safety and invalid traffic: Targeting, viewability, brand safety and invalid traffic all are aspects used by marketers to help advocate digital advertising. Cookies are a form of digital advertising, which are tracking tools within desktop devices; causing difficulty, with shortcomings including deletion by web browsers, the inability to sort between multiple users of a device, inaccurate estimates for unique visitors, overstating reach, understanding frequency, problems with ad servers, which cannot distinguish between when cookies have been deleted and when consumers have not previously been exposed to an ad. Due to the inaccuracies influenced by cookies, demographics in the target market are low and vary (Whiteside, 2016). Another element, which is affected within digital marketing, is 'viewabilty' or whether the ad was actually seen by the consumer. Many ads are not seen by a consumer and may never reach the right demographic segment. Brand safety is another issue of whether or not the ad was produced in the context of being unethical or having offensive content. Recognizing fraud when an ad is exposed is another challenge marketer's face. This relates to invalid traffic as premium sites are more effective at detecting fraudulent traffic, although non-premium sites are more so the problem (Whiteside, 2016).

Channels

Digital Marketing Channels are systems based on the Internet that can create, accelerate, and transmit product value from producer to a consumer terminal, through digital networks. Digital marketing is facilitated by multiple Digital Marketing channels, As an advertiser one's core objective is to find channels which result in maximum two-way communication and a better overall ROI for the brand. There are multiple digital marketing channels available namely;

1. **Affiliate marketing** - Affiliate marketing is perceived to not be considered a safe, reliable and easy means of marketing through online platform. This is due to a lack of reliability in terms of affiliates that can produce the demanded number of new customers. As a result of this risk and

bad affiliates it leaves the brand prone to exploitation in terms of claiming commission that isn't honestly acquired. Legal means may offer some protection against this, yet there are limitations in recovering any losses or investment. Despite this, affiliate marketing allows the brand to market towards smaller publishers, and websites with smaller traffic. Brands that choose to use this marketing often should beware of such risks involved and look to associate with affiliates in which rules are laid down between the parties involved to assure and minimize the risk involved.

2. **Display advertising** - As the term implies, online display advertising deals with showcasing promotional messages or ideas to the consumer on the internet. This includes a wide range of advertisements like advertising blogs, networks, interstitial ads, contextual data, ads on the search engines, classified or dynamic advertisement etc. The method can target specific audience tuning in from different types of locals to view a particular advertisement, the variations can be found as the most productive element of this method.

3. **Email marketing** - Email marketing in comparison to other forms of digital marketing is considered cheap; it is also a way to rapidly communicate a message such as their value proposition to existing or potential customers. Yet this channel of communication may be perceived by recipients to be bothersome and irritating especially to new or potential customers, therefore the success of email marketing is reliant on the language and visual appeal applied. In terms of visual appeal, there are indications that using graphics/visuals that are relevant to the message which is attempting to be sent, yet less visual graphics to be applied with initial emails are more effective in-turn creating a relatively personal feel to the email. In terms of language, the style is the main factor in determining how captivating the email is. Using casual tone invokes a warmer and gentle and inviting feel to the email in comparison to a formal style. For combinations; it's suggested that to maximize effectiveness; using no graphics/visual alongside casual language. In contrast using no visual appeal and a formal language style is seen as the least effective method.

4. **Search engine marketing** - Search engine marketing (SEM) is a form of Internet marketing that involves the promotion of websites by increasing their visibility in search engine results pages (SERPs) primarily through paid advertising. SEM may incorporate Search engine optimization, which adjusts or rewrites website content and site architecture to achieve a higher ranking in search engine results pages to enhance pay per click (PPC) listings.

5. **Social Media Marketing** - The term 'Digital Marketing' has a number of marketing facets as it supports different channels used in and among these, comes the Social Media. When we use social media channels (Facebook, Twitter, Pinterest, Instagram, Google+, etc.) to market a product or service, the strategy is called Social Media Marketing. It is a procedure wherein strategies are made and executed to draw in traffic for a website or to gain attention of buyers over the web using different social media platforms.

6. **Social networking service** - A social networking service is an online platform which people use to build social networks or social relations with other people who share similar personal or career interests, activities, backgrounds or real-life connections

7. **In-game advertising -** In-Game advertising is defined as "inclusion of products or brands within a digital game." The game allows brands or products to place ads within their game, either in a subtle manner or in the form of an advertisement banner. There are many factors that exist in whether brands are successful in their advertising of their brand/product, these being: Type of game, technical platform, 3-D and 4-D technology, game genre, congruity of brand and game, prominence of advertising within the game. Individual factors consist of attitudes towards placement advertisements, game involvement, product involvement, flow or entertainment. The attitude towards the advertising also takes into account not only the message shown but also the attitude towards the game. Dependent of how enjoyable the game is will determine how the brand is perceived, meaning if the game isn't very enjoyable the consumer may subconsciously have a negative attitude towards the brand/product being advertised. In terms of Integrated Marketing

Communication "integration of advertising in digital games into the general advertising, communication, and marketing strategy of the firm" is an important as it results in a more clarity about the brand/product and creates a larger overall effect.

8. Online public relations

- Video advertising - This type of advertising in terms of digital/online means are advertisements that play on online videos e.g. YouTube videos. This type of marketing has seen an increase in popularity over time. Online Video Advertising usually consists of three types: Pre-Roll advertisements which play before the video is watched, Mid-Roll advertisements which play during the video, or Post-Roll advertisements which play after the video is watched. Post-roll advertisements were shown to have better brand recognition in relation to the other types, where-as "ad-context congruity/incongruity plays an important role in reinforcing ad memorability". Due to selective attention from viewers, there is the likelihood that the message may not be received. The main advantage of video advertising is that it disrupts the viewing experience of the video and therefore there is a difficulty in attempting to avoid them. How a consumer interacts with online video advertising can come down to three stages: Pre attention, attention, and behavioural decision. These online advertisements give the brand/business options and choices.

It is important for a firm to reach out to consumers and create a two-way communication model, as digital marketing allows consumers to give back feed back to the firm on a community based site or straight directly to the firm via email. Firms should seek this long term communication relationship by using multiple forms of channels and using promotional strategies related to their target consumer as well as word-of mouth marketing.

Self-regulation

The ICC Code has integrated rules that apply to marketing communications using digital interactive media throughout the guidelines. There is also an entirely updated section dealing with issues specific to digital interactive media techniques and platforms. Code self-regulation on use of digital interactive media includes:

- Clear and transparent mechanisms to enable consumers to choose not to have their data collected for advertising or marketing purposes;
- Clear indication that a social network site is commercial and is under the control or influence of a marketer;
- Limits are set so that marketers communicate directly only when there are reasonable grounds to believe that the consumer has an interest in what is being offered;
- Respect for the rules and standards of acceptable commercial behavior in social networks and the posting of marketing messages only when the forum or site has clearly indicated its willingness to receive them;
- Special attention and protection for children.

Strategy

Planning

Digital marketing planning is a term used in marketing management. It describes the first stage of forming a digital marketing strategy for the wider digital marketing system. The difference between digital and traditional marketing planning is that it uses digitally based communication tools and technology such as Social, Web, Mobile, Scannable Surface. Nevertheless, both are aligned with the vision, the mission of the company and the overarching business strategy.

Stages of planning

Using Dr Dave Chaffey's approach, the digital marketing planning (DMP) has three main stages: Opportunity, Strategy and Action. He suggests that any business looking to implement a successful digital marketing strategy must structure their plan by looking at opportunity, strategy and action. This

generic strategic approach often has phases of situation review, goal setting, strategy formulation, resource allocation and monitoring.

1) Opportunity

To create an effective DMP, a business first needs to review the marketplace and set 'SMART' (Specific, Measurable, Actionable, Relevant and Time-Bound) objectives.[67] They can set SMART objectives by reviewing the current benchmarks and key performance indicators (KPIs) of the company and competitors. It is pertinent that the analytics used for the KPIs be customised to the type, objectives, mission and vision of the company.

Companies can scan for marketing and sales opportunities by reviewing their own outreach as well as influencer outreach. This means they have competitive advantage because they are able to analyse their co-marketers influence and brand associations.

To cease opportunity, the firm should summarize their current customers' personas and purchase journey from this they are able to deduce their digital marketing capability. This means they need to form a clear picture of where they are currently and how many resources they can allocate for their digital marketing strategy i.e. labour, time etc. By summarizing the purchase journey, they can also recognise gaps and growth for future marketing opportunities that will either meet objectives or propose new objectives and increase profit.

2) Strategy

To create a planned digital strategy, the company must review their digital proposition (what you are offering to consumers) and communicate it using digital customer targeting techniques. So, they must define online value proposition (OVP), this means the company must express clearly what they are offering customers online e.g. brand positioning.

The company should also (re)select target market segments and personas and define digital targeting approaches.

After doing this effectively, it is important to review the marketing mix for online options. The marketing mix comprises the 4Ps – Product, Price, Promotion and Place.[71][72] Some academics have added three additional elements to the traditional 4Ps of marketing Process, Place and Physical appearance making it 7Ps of marketing.

3) Action

The third and final stage requires the firm to set a budget and management systems; these must be measurable touchpoints, such as audience reached across all digital platforms. Furthermore, marketers must ensure the budget and management systems are integrating the paid, owned and earned media of the company. The Action and final stage of planning also requires the company to set in place measurable content creation e.g. oral, visual or written online media.

After confirming the digital marketing plan, a scheduled format of digital communications (e.g. Gantt Chart) should be encoded throughout the internal operations of the company. This ensures that all platforms used fall in line and complement each other for the succeeding stages of digital marketing strategy.

Understanding the Market

One way marketers can reach out to consumers, and understand their thought process is through what is called an empathy map. An empathy map is a four step process. The first step is through asking questions that the consumer would be thinking in their demographic. The second step is to describe the feelings that the consumer may be having. The third step is to think about what the consumer would say in their situation. The final step is to imagine what the consumer will try to do based on the other three steps. This map is so marketing teams can put themselves in their target demographics shoes. Web Analytics are also a very important way to understand consumers. They show the habits that people have online for each website. One particular form of these analytics is predictive analytics which helps marketers figure out what route consumers are on. This uses the information

gathered from other analytics, and then creates different predictions of what people will do so that companies can strategize on what to do next, according to the peoples trends.

Sharing economy

The "sharing economy" refers to an economic pattern that aims to obtain a resource that is not fully utilized. Nowadays, the sharing economy has had an unimagined effect on many traditional elements including labor, industry, and distribution system. This effect is not negligible that some industries are obviously under threat. The sharing economy is influencing the traditional marketing channels by changing the nature of some specific concept including ownership, assets, and recruitment.

Digital marketing channels and traditional marketing channels are similar in function that the value of the product or service is passed from the original producer to the end user by a kind of supply chain. For instance, a typical digital marketing channel is email. Organization can update the activity or promotion information to the user by subscribing the newsletter mail that happened in consuming. In addition to this typical approach, the built-in control, efficiency and low cost of digital marketing channels is an essential features in the application of sharing economy.

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Skill Contribution for Self-Employment and National Growth

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Abstract
Purpose: The main purpose of this paper is to explore the contribution of Skill for giving self-employment for individual and how skill-based self-employment support in reducing the burden of individual and national growth.

Design/Methodology/Approach: this study is conceptual approach and exploratory research to examine a skill-based self-employment contribution to gain job satisfaction, balancing the work life, health and financial freedom of individual along with adding support to reduce nation burden.

Findings: The study proves that there is a direct relation between the skill and employability which not only shows its impact on individual but also to nation growth and development it is observed by the literature self-employment play a major role in nation development and it improve the life style and increase the job satisfaction level of individual with wellbeing to improve their life.

Research Limitation/implication: it is seen that very less no to study has been done in this area

Social implication: this study has the social implication for every individual who is having self-employment and is directly related to present status in the society and how the skill can help to empower the individual and nation.

Originality /value: To study for such area this model is original and matchless; it is based on review of research papers and reports. It provides a well-supported explanation of the individual job satisfaction for self-work. The present research gives a picture of healthy and final stability of individual when they are self-working. It also states that how nation can be benefited if more no of citizens are self-employed which will give the best result for individual and national growth; this study will also help the future researcher for further growth in this area.

Keywords: Skill, Self-employment, Satisfaction, Work life balance, National growth.

Paper type: Research paper

Introduction

Skill is ability to perform any work in a better way. Skill is need of present time in every work we do in which ever sector we work. Even in our day to day life based routine task, skill has been performing knowingly and unknowingly. Skill advancement helps to update the work and help an individual to do that same work in a productive way. In many developing countries unemployment is increasing and has become burden not only for individual but also to the nation. In many country industrial productivity are play a major role for the growth and development of nation. The question arises why to have skill and that to for self-employment the main reason are as follows: Recruitment process has been complicated with increasing demand of skilled manpower which create a unemployment or semi employment in the country. The key judgment indicates that the lengthier period of joblessness is completely linked with access to self-employment. Many studies has planned the factors prompting the duration in employment in both industry market mostly male workers display a higher probability of being entrepreneurs than fresher,. (Caparrós Ruiz, 2010)

Employment gaps were not, however, related to psychological wellbeing(Burke and McKeen, 2002).

Self-employment through home-based skilled business has as a potential to explain to the inter-role conflict experienced by women who are attempting to balance dual role of work and family. Home-based skilled businesses and operators with and without defendants were made. Many researches also address the issue of home-based businesses being emancipatory vehicles for women juggling to manage work and family and provide a financial freedom to them.(Vassie, 2010)

Many citizens of our country are having self-business, they are not only create employment for self but also for other. Skill gives the ways that also help to have more export product by generating self-employment business by using skill and creativity which help to reduce the country burden of balance of payment. Many university are adding the new courses along with government project to develop more skilled entrepreneur's in the country which help the people to get is an opportunity to start are own work. The results show that low ranks of learning skill by country man are a main reason for slow growth of the country.(Hughes, 2001) University–industry linkages can help in reducing the skill gaps and facilitate a smooth transfer of skills from college to office. Many research of similar area are trying to discover gap to enquiry of employability. (Sangwan and Garg, 2017) Most of case the health and financial issue are mostly seen in occupational jobs and in the case of self-employment such issues are seen less .In occupational job in most of the cases skill mismatch affect the life style relevance of matching skill and job more efforts should be made in the country to promote self-employment which can solve the issue of stress and health of individual that can improve the life style of their working and can impact on increasing financial position of the individual(Sanchez *et al.*, 2015)

Objective of the study

1. To understand the different aspect of employability
2. To know how skill can be helpful in self-employment.
3. To study employment based nation growth
4. To understand skill for job satisfaction, financial stability and heath of individual in self-employment.

Review of literature:

***Skill and its applicability in the present scenario*:**

The Present study reveals how skill value for the social political and economic which highlights the aspect related to skill and give the sign of skill in the present scenario.(Chell, 2013) Study identifies the supply and demand of social capital in the industries. Skill is needed to retain the talent of the industries. Study emphasis on of investing on human capital to enhance the skill by skill-based training for maintaining country growth and its position in global market place.(Malik and Venkatraman, 2017) The required job related skill is needed in order to improve the performance of the employee. Today employee which has highly specialized skill act as a assets for the firm such skill in individual give motivation to team performance which has a high positive impact on team support and effort.(Dees and Anderson, 2006)

Skill deficiency can be seen in every graduate and undergraduate student.. The study shows that of U.K institute are helping the student to learn new skill and to meet the required demand of skill find skill gap of required and present skill. (Jackson *et al.*, 2012) many research paper reveals that the skill and its importance to compensation management and institution are giving importance to the student for skill-based development which help them to have quality performance and developmental growth in the industries which demand skill-based compensation policy which enhance the quality work (Hughes, 2011) Training experience is an essential factor to gain skill, willingness of individual to attend the vocational training it identify that how important is to attend training course(Wang, 2019)By identify the various aspects of skill and skill mismatch which act as a real huddle for job. The ratio of skill required and present skill has a huge difference, mostly it is seen that unskilled, semiskilled skilled highly skilled employee depict the requirement in the industries. (Thum-thysen, 2018)

Skill impacting occupational employment:

People used to have their own business and they can only think of their own skill to pursue that the study shows that how there is a downfall in wage employment and why we can see increase shift from wage to self-employment in recent years(Andersson and Andersson, 2014)The recent development there is change in economy and with this dynamism in industry ,there is a change in occupational employment. Giving the categories of manufacturing, service, information technology etc the changes mostly see according to the recent development, manufacturing, service, information technology etc. (Bredt, 2014)

Skill impacting and generating self-employment:

Identify the supply and demand of human capital in the industries, skill required to retain the talent of the industries. Investing on human capital is done in many country to enhance the skill for maintaining country growth in global market. (Malik and Venkatraman, 2017) The main aim of study is to increase the interest on skill based training and motivating the individual to have a better performance. There are many interesting facts that are the double forces of self-working to drive and/or attraction the businessperson on the way to self-employment(Broomé and Ohlsson, 2018)

Skill-based occupational employment impacting the Industry.

With occupational labor market recruitment and selection seems easy task but in depth it has become crucial day by day as there is a shortage of skill and skill workforce which led to increases in unemployment in the nation so skill has become necessary need to the labor and industrial growth to help individual to get a better pay and to help the industry to have a quality and productive work prevailing in the industry(Clarke *et al.*, 2008), (Hart *et al.*, 2012), There is increasing research in the area of skill and there is huge gap between the skill and unskilled employee which can be seen in every sector and nation which has directly and indirectly impact on individual growth and industrial growth it has seen that developed nation have the impact on skilled and manual based employment which increase the demand worldwide of skill and skill workforce in every section of the industry(Haskel *et al.*, 2014) Industrial unrest is the common issue of today's dynamic business world turnover is a one of major problem which can be seen in the industry major turnover has been seen due to lack of skill and unskilled worker present in the industry.Collective turnover is mostly seen also due to underutilization of present prevailing skill which have the stronger effect to individual, industrial and country growth.(Mitchell and Zatzick, 2016), Skill has always been demanded in every business house and at every sector prevailed the productivity and growth skill has been the major factor of demand which is required for section and retaining the best skill in the industry as skill-based employee are the real assets for firm and industries company spend huge amount to training the official for obtaining such skill.(Clarke *et al.*, 2008)

Skill-based occupation employment impacting individual employee in the Industry.

Public Policy for the growth of nation and industries have been changing with the passage of time and with that government assistance in financial scheme and funding for own business is also keep on changing with the passage of time now much emphasis has been given on financial scheme and loan for small and medium scale industries with less burden interest and subsidies on import and export for self-employment and serves on business for supporting the newcomers the government give marketing management quality increase promotional and buying time support alone with financial benefit's to enhance the trade and business in every developing country(Hart *et al.*, 2012)

Skill based self-employment Impacting individual (job satisfaction, work-life balance financial stability future investment, the health of the individual)

Heath is the wealth for every individual and when it comes for working employment the working hours and working condition and equipment affect the individual at every mental and physical level there are numerous factors to understand the occupational health and safety measures and rules which not only affect the individual but also to its family. (Sylvie Gravel and Jacques Rhe´aume, 2011), Recent study and research is mainly focused on entrepreneurship and innovation over the past year s and they mostly seen that they face skill problem in individual employee with this study we can find the gap as skill has lost its meaning and identity it's a complex issue for growth and sustainability in

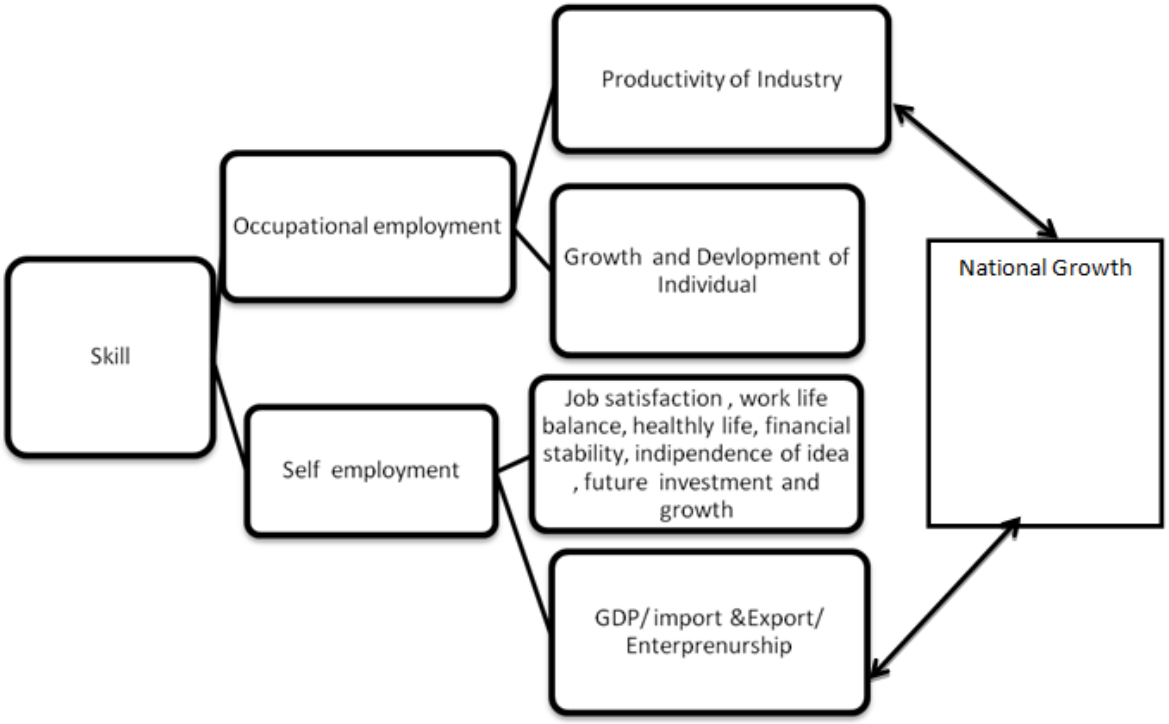
the industry for stability and growth of individual there is an urgent need of skill-based competencies in order to survive in the industry which affects its wellbeing and health and life management.(Chell, 2013) working self-employed women have many related factors which made life balance in all aspect mostly in self-employment based on skill women entrepreneur play a major role involvement towards the development of the nation. it is women who change the unemployment to self-employment., All described upon topics of choice, elasticity, and independence regarding how and when they worked. Fascinating based on skill.(Marlow, 2006) previous experience of workplace discrimination, financial uncertainty, expose worries, class of jobs vacant and the likely of work at periods to degrade intellectual health conditions. In occupational job.(Arthur *et al.*, 2013)

Skill based self-employment impacting the nation. (GDP/Import and Export/Entrepreneurship).
Job requirement create job creation increase in balance of payment and Exim policy it becomes a difficult task for country to come over to it such an exam like a Korean trade where similar problem has been identified in labor market with lack of skill and confidence which increase the unemployment problem more of export can not only benefit the firm but also to the nation development.(Unjung Whang, 2018) Export is important aspect not for business But also for national growth present study give the idea about positive impact about the export and find key determination of export-based firms skill and skill-based business increase the productivity at the minimum cost.(Sharma and Mishra, 2012) Export and its performance are often affected by many of the factors such as lack of skill and finance for production serving the large population and various taxable policy of every country it demotivates the self-employment and it set back for nation growth.(Lahrech,Sylwester, 2018) Poverty is the national issues of every developing country the present study give knowledge. unemployment has the direct relation with the poverty and whole all the people can get the occupational professional job so they mostly depend on self-own business. self or acquired skill or experience of business Nigeria has a similar kind of issue and the study has made an effort to help us understand that how a poverty and employment-oriented economic policy must start out by improving the framework for growth.(Babatunde and Oyeranti, 2013). It is mostly seen that the traditional export generate more revenue to the nation but unable to give the world market to the country, much nontraditional skill-based business and enterprises have come up with innovative product and idea to capture the world market. Financial schemes and institute play a major role to increase the export and balance the trade many guarantee schemes and various credit and infrastructural scheme help to promote skill based nontraditional and meditational business to have completion and approach to the global market(Buatsi and Buatsi, 2013)

Growth and development of the nation with skill:
The term growth and development of a nation is very complicated for any nation it is very comprehensive in nature, which cover almost all the aspect of the nation. UNESCO reported two facts which are must for nation growth education and national income. nation income is calculated by GDP and the income earn by the citizen which directly link to employment which is the biggest problem that any nation can have so self-employment and skill-based occupational employment adds to the growth and development of the country. Paper gives an idea about fundamental determinant of population health mainly it has been directly or indirectly affecting to wellbeing of citizen and country growth. Present study give the knowledge about better understand of human resource and social capital which are key assets for any nation to define the aspects various measuring model which has been prepared for performance assessment. all the human capital that has linked with social capital affects to the nation growth(Yogesh Malhotra, 2004)

The review gives the knowledge about skill advancement can be the part to move higher wages and better condition for employee. In South Africa, skill has become the part of their working at the workplace, school and colleges to uplift the South Africa. All the skill training was given with vocational training, as the people of South Africa know that can be achieved by skill development mostly the African were unskilled so they migrants to their neighbor country for self-employment. skill development practice by vocational training has given a change of growth to South Africa.(Mcgrath, 2009) we critically inspects two trajectories for economic development under the new global economic competition: New Right and Modernizers. It is claimed that either situations are

the key factor to achieve economic prosperity The Innovators or modernizer are the two factors that emphasize the idea of a 'high skill. However, their characterization of the relationship between national and global economies is extremely defective. This results in a contradiction within the Modernizers' position. Yet, a separated culture will not generate high values of educational attainment for all.To resolve the inconsistency by so long as a more satisfactory clarification for separation and, in doing so, establishes agenda for integration. (Brown and Lauder, 1996). Skill is a must in today's dynamic business world skill for improving employment growth and development. Inadequate education and low level of standard degraded the productivity job relevant skill and skill up gradation. Training always improves to get the skill for more no men and women of the country. the country to get high-level productivity employment generation and income growth and development. Effective skill development enhance productivity it is an important source to improve the living standard of the people and their growth it also helps to gain a sustainable enterprise development, social dialogue and fundamental investing which also add a part to improve education level, health, and physical infrastructure.(ILO, 2008)



Model based on Review

The above figure is a model of decision tree which has directly and indirectly impact on national growth this paper away path that research follow for conclusion skill is the part of individual day to day life looking its sincerity of the skill encouragement programme has been implementing to every developing nation as it not only improves the individual level of sperformance but it also adds to development of industries and as the industry had direct influence to GDP growth rate . if the citizen of the developing country have skill development at every aspect whether he working for some organization or having self-own business small or at large level they must have skill life skill and employability skill for their stability in their life and for their wellbeing although self-employment improve the living and has many benefits with risk which affects the health and their financial condition more self-employment more reduce the burden of the country. Skill gives an individual occupational and self-employment both are necessary for the country giving the different parameters affecting individual and industry skill lay to the productivity of the industry with growth and development of an individual.

Self-employment has a direct effect on individual self and job satisfaction, special when they have family and other responsibility they balance both kind of work which done by skill to manage both

the affaire when person does self-willing work they have the satisfaction and they work to improve their financial stability and financial growth as many self-employment schemes for male and women lifting and development scheme has been promoting giving financial assistance for incubation and startup plan. For self-employment, there are many issues in the case of occupational job which many a time give dissatisfaction and health problem to the individual working hours and work pressure directly or indirectly affect the health of an individual. This has seen less in the case of self-employment. More self-employment more incubation of startup entrepreneurship with more self-made skill gross domestic product in the country, if more skill and innovative production will be their more demand of the product in the global market which will be increasing the export in the country. It is a positive way by which the country can progress and these entire things, directly and indirectly, affect the country growth and it reduces the main burden of the country that is unemployment. It degrades the process of individual and the country at a global

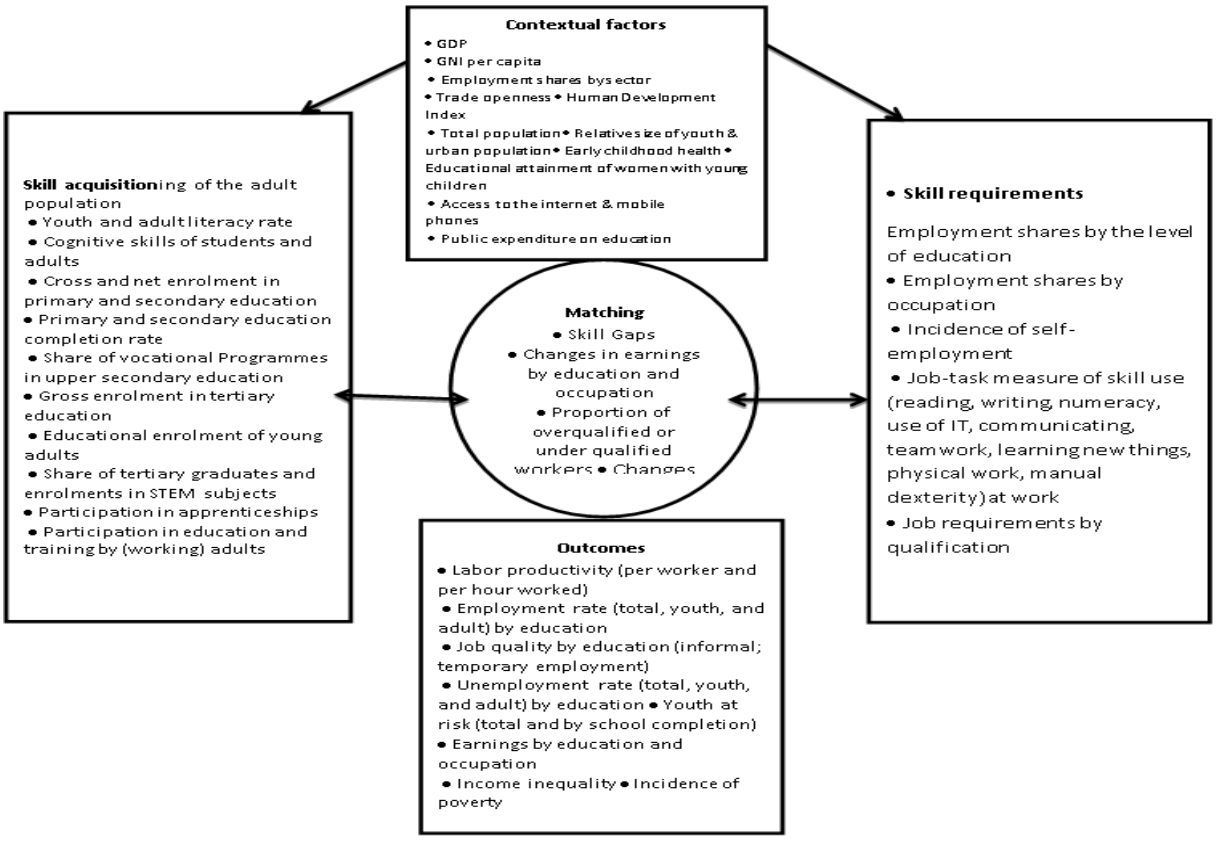
Methodologies

The study in this paper is based on the secondary data and information sourced from libraries, relevant books, journals, magazines, articles, media reports, and Management portal

Data Analysis and Finding

The employability and skill has direct relation(Yogesh Malhotra, 2004) which can be studied by knowing various contextual factors of the nation. The supply and the demand of skill person required at every level of the industry. The review model shows the skill need in both occupational and non-occupational jobs. Model has been made to understand different factors such as GDP, Productivity etc with help of literature review which is link with occupational and non-occupational job impacting individual and national growth. (ILO, 2008)

Nation growth is affected by various contextual factors such as GDP, Productivity etc which are explain in model. Contextual factor affect the nation growth and such factor are affected by the skill demanded and supplied in the country. When skill acquisition and skill required gap is large then it affects the outcome and growth of employee, Industry and Country. (Clarke *et al.*, 2008) data



Source: OECD, Skills for Employment Indicators World Indicators of Skills for Employment (WISE) database List of indicators and conceptual framework

The above diagram shows that in developing country like India there are many factors that affect the growth of the nation such as GDP and population etc. All the factors need development by skill. And present skill and required skill have a gap of less earning and education etc which affect the outcome of individual and industries.

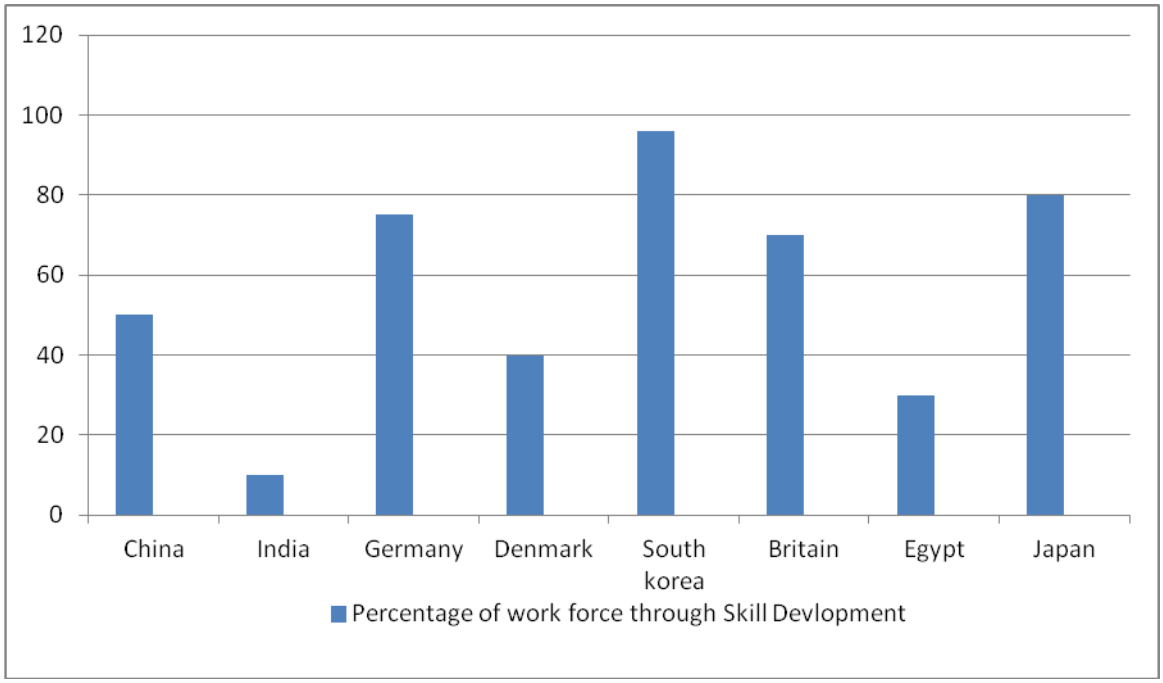
Figure 2

Industry has its own definition for skill training which affect the demand and supply of employee in the country we can identify this by seeing various level of management, the skilled and unskilled worker. Industry working classes are manual or non-manual in nature.

Allocation of social economic group	**Skilled/unskilled**
Non-manual	Skilled
Managers Professional and technical workers	Skilled
Intermediate non-manual workers	Skilled
Junior non-manual workers	Unskilled
Manual	
Forman /supervisor	Skilled
Skilled manual	Skilled
Semi-skilled manual	Unskilled
Unskilled manual	unskilled

Source: Allocation of socioeconomic groups to skill categories International Journal of Manpower Skilled and unskilled employment in UK manufacturing over the 1980s Jonathan Haskel, Robert Jukes,

The above table shows the position required more skill training in the industry. Manual skill position have more skills than the non-manual and in both the categories industry demand more skilled working people that affect to the productivity of industries and growth of the country. (Brown and Lauder, 1996)



Source: Prasad, Jagdish, Purohit, D G M (Skill Development , Employability and Entrepreneurship Through Make in India : A Study)

The above figure identify the gap which prevail most of the developing countries how skill development become must to generate effective and employable work force in the country according to the figure above china hold 50 percent of skill based training where south korea had in great developmental stage as maximum no of percentage of skill work force can be seen

Developing country like India needs to have skill work force for the progress of the country word wide India has a huge skill gap in comparison to rest of the world. In India, as shown in Fig: 1. only 10% of the total Labor Force get some skill training in which 2% with formal training and 8% with informal training . Moreover, 80% of the new additions into the workforce do not even have the opportunities for training for skill enhancement.(Prasad and Purohit, 2017)

The major finding in this research is too see the impact of skill both in occupational and non occupational jobs in providing both kinds of employment.The literature review gives the idea that how skill has an impact on an individual and industrial level. it shows how skill and employment are closely related to each other and it's also highlight the various issue related with occupational employment. skill generate employment and add to increase the export and GDP of the country. Individual with the help of self-employment became self-sustain at any age and life stage if he or she possesses skill for doing any business and it adds to the economy the model and data analysis shows the factor affecting the national growth which is the part and parcel of occupational and non-occupational jobs as mention in model and diagram. The gap of supply and demand for skill affect the outcome of individual and industry. So effort is needed to balance the demand and supply.

Conclusion and Suggestion

Self-employment ad a major role for the growth and development of the nation it not work for the financial stability of individual but it gives the independence of self-decision. Financial stability is the major benefit of self-employment which doesn't require any qualification to start but it required well the power and the opportunity for an individual to start a career option in the form of self-entrepreneurship. The study highlight the problem of occupational job and encourage the self-earning by developing skill

Without the right ability, the person will waste the time, money, effort and resources. Due to lack of skill, there is no growth. For financial growth and community development of any country, skill and knowledge development are the basic driven forces. Skill development is a controlling tool to allow persons and improve their communal recognition. The main emphasis of ability development is to make a labor force enabled with the needed and nonstop up gradation in skill, awareness. Universally are known for qualification to advance access to decent service and safeguard competitiveness in the energetic universal marketplace. It objective is to develop the productivity and employability of the labor forces both in the organized and unorganized sectors.

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Financial Innovation in India: A Conceptual Study

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ABSTRACT
The chapter discusses that the financial innovations play a vital role in the modern financial system, aim to identifying and systematizing the core problems of Indian financial system and how can we innovate this system to providing benefits through these innovations at grass root level. We are going to discuss in this paper on various issues and problems in this field, how can we overcome on these hurdles and barriers. Based on various studies, the definition of the financial innovations is to develop, any new developments in any elements of the financial system, in addition to markets, institutions, instruments and regulations, may be treated as financial innovation if someone perceived as new by the end-user of innovation. Various factors like increasing the interest rate, volatility, slab of tax and many regulatory changes etc. have aroused the process of financial innovation. The present paper aims to highlight the essence of financial innovations that have a major impact on the financial system of India and focuses on key drivers and meanings.

Keywords: Financial Innovation, Fiscal Policy, Market Volatility, Financial crisis.

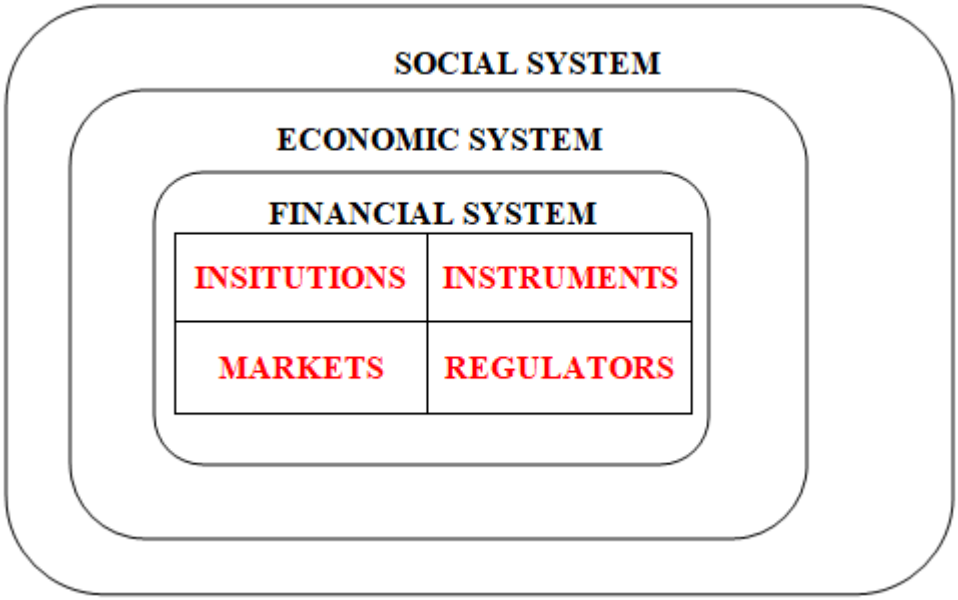
CONCEPTUAL FRAMEWORK

Basically Financial Innovation can be defined as the task of creating and popularizing some types of new Financial Instruments including new Financial Technologies, Institutions and Financial Markets. Financial Innovation includes the institutional, products and process innovations. Financial Innovation is clearly an important event in any sector of a modern Indian Economy. It's the key factor that empowers business to compete effectively in the increasingly competitive world market. Innovation has for too long been confined to the world of Research & Development and development of new product. According to Davila and others (2006), "Innovation is like various business function, is a management process that requires specific tools, rules and discipline." According to Milton (2003), "The time has come for innovation to enter the main stream of management thinking, to achieve its rightful place together financial management and strategic planning as a determinant of business success". World cannot wait for necessity to go for invention. People need to create to delight our customers and ourselves for our survival, growth and development. In present scenario profitability and growth is not a guarantee of future success, if we cannot keep on innovating, will only be perished.

The Financial Innovations had a long back of advancement that we can rearrange it and state that any budgetary instruments (other than conventional offers and straight securities), any Financial Institutions (other than customary banks) and any Financial Markets (other than the conventional markets), for a specific timeframe, can be delegated Financial Innovations. In the 17thand the eighteenth century the new Financial Instruments, obligation contracts close by high fluid markets had been acquainted with gather capital required to back the maritime endeavor and exchanging journey. In nineteenth century the speculation banks built up new bookkeeping strategies to assess the benefit of railroad organizations and to give them wellsprings of money and in twentieth century, the private value organizations developed to examine and financed to cutting edge venture ventures. Money related Innovations decrease the exchange cost of moving assets. Thusly, with Financial Innovations client of market attempts to limit the hazard and to amplify the arrival. The principle target of Financial Innovation is to make the different Financial Services offered by money related framework less expensive and increasingly accessible for clients and to improve their quality, for a long haul

economical development of rising economies. For the most part of the Financial Innovation of the 1970s and 1980s unveiled the systems had taken by the monetary middle people so as to offer savers serious returns. In initiate of 21st century, the new type of venture organizations were advancing the pharmaceutical enterprises to dissecting and subsidizing the bio-tech creative arrangements. There are just a couple of instances of the new budgetary improvements and their advancement, it was basic for the mechanical and financial advancement. However, the new meaning of the Financial Innovations can be created dependent on the meaning of the monetary framework. Right now can include: (1) Financial Markets, (2) Financial Institutions, (3) Financial Instruments and (4) Regulations associated with the exercises (stream diagram). The relations between these gatherings of Financial Innovations are multidimensional and can be portrayed as the winding of advancements. It implies the new Financial Institutions will make new Financial Instruments regarding items and administrations which might be exchanged the new Financial Markets and these sort arrangements need in the blink of an eye the new guidelines.

For holding new elements of progress in budgetary areas different Financial Innovations have started to money related advances, for example, Automated Teller Machines (ATM), Risk Management Products, National Electronic Funds Transfer (NEFT), Right Time Gross Settlement (RTGS), Mobile Banking, BHIM, Phone Pay, Google Pay and so forth. The principle reason for the paper is to break down the idea of Financial Innovations close by money related advances. Budgetary Innovation goes about as a projection to fund mechanical activities when traditional wellsprings of money are not accessible in view of high dangers of speculations. On second begat the economy of India is advancing innovatively which brings about multifaceted nature of business forms and new kinds of hazard which powers the money related framework to embrace the changes. We can see effectively to the framework and economy through the given stream outline where it very well may be seen that the entire arrangement of the nation is the social framework, second one is monetary framework and last and third one is the money related framework. In monetary arrangement of the nation we can include the Institutions like RBI, Commercial Banks, Public and Private Sector Banks, Instruments like Bonds, Mutual Funds, NSC, KVP credit papers, Debentures, Shares, Markets like Security Market, Commodity and Stock Markets and Regulators who direct the entire markets like SEBI, IRDA, PFRDA and others the entire framework is called as money related framework.



Classification of the Financial Innovations

Classification of the Financial Innovations Criteria	Types of financial innovations
Sources of Innovations	Supply-Driven Innovations Demand-Driven Innovations
Factors of Innovations	External Factors Driven Innovations Internal Factors Driven Innovations
Motives of Innovations	Adaptive Innovations Aggressive Innovations Defensive Innovations Protective Innovations Responsive Innovations
Elements of the Financial System	Financial Market Innovations Financial Institutions Innovations Financial Instruments Innovations Financial Regulations Innovations
Types of Innovations	Product Innovations Process Innovations Risk-Shifting Innovations
Effect of Innovations	Sustainable Innovations Harmful Innovations
Moment of Creation	Ex-Ante Innovations Ex-Post Innovations
Underlying Assets	Debt-Linked Innovations Equity-Linked Innovations

KINDS OF FINANCIAL INNOVATION

Financial Innovations build up the manageability of foundations and their span to poor people. Fundamentally Financial Innovations are three sorts and they are grouped in different habits which are following:

Budgetary System and Institutional Innovations: These sorts of developments can influence the entire money related part, identified with changes in business structures, to the establishment of new kinds of Financial Intermediaries, to move in legitimate and supervisory structure. Huge numbers of case show the end of the gathering instrument in Retail Financial Services, accommodating casual account frameworks, limiting the openness obstructions for ladies, or set up a totally new type of administration structure.

Procedure Innovations: These sorts of developments spread the new business forms prompting expanded effectiveness, extension of business sectors, and so forth show as office computerization and utilization of PCs with bookkeeping and the board for customer exactness.

Item Innovations: These kinds of developments include the new store, credit, protection, employ buy, renting and some other money related items. Item developments have been acquainted with react better reaction in advertise request and to improve the productivity of item showcases.

KEY DRIVERS OF FINANCIAL INNOVATION

There are numerous elements that have lead to Financial Innovation on the business sectors. Some of them key ones are portrayed as:

Monetary Crisis: Economic Crisis prompted transforming the guideline of the money related segment, and this may have sway on Financial Innovation. Deregulate to the Financial Markets prompted the advancement of new Financial Instruments. New Financial Instruments prompted further guideline in the Financial Markets.

Vulnerability: Asset esteems become progressively unstable and so as to secure them Financial Institutions need to create assortment of items to fence dangers. Expanding unpredictability in pace of

premium, swelling rate, value costs and trade rates are the main considerations to the vulnerability in the business sectors just as Financial Institutions. Every one of these variables in the market have been building up a connection between the dangers related with the advantages, the premium and trade rates.

Progression in Information Technology Sector: The headways in the IT area have reflected to new Financial Innovations, the assurance and the administration of which are testing and required nearer assessment. IT upheaval has diminished the expense of Financial Transactions. It has likewise reflected to the improvement of certain money related items where valuing is increasingly required on continuous premise which may impractical without progression of information preparing programming.

Advancement of interpersonal organizations: Various social locales like Twitter, Facebook and YouTube are being utilized to offer new budgetary administrations increment the collaboration with the clients and building up the social relations, gather the new thoughts from outside of the Financial Institution. These web based life and social locales permit to gathering continuously input and thoughts that can be utilized to begin an organization's development forms. There is particularly information traffic on the planet, so there is a dire need to make new body or association to successfully organize the different kinds of information and inflows of data and the following of the outside thoughts towards affirmation or dismissal.

REVIEW OF LITERATURE

Schumpeter expressed in his work in the year 1942 that tremendous firms incline toward for advancement because of Research and Development extends generally include more costs that must be recouped with comprehensive deals. They appreciated scale and extent of economies during the time spent development and have moderately better access to outside money related assets. Next one Scherer and Ross recommended in their work in the year 1990 that little firms might be increasingly agreeable to become quick trend-setters if Research and Development in bigger firms is undermined by loss of administrative control and a bureaucratic way to deal with advancement. Aron and Lazear expressed in their hypothetical model in the year 1990, recently shaped firms are bound to start new research programs and present new items result might be in higher benefits over the more extended term. Another factor that is to separate with the new and old firms is Cannibalization. In contrast to new firms, occupants must consider potential lost incomes from deals of an old item in the event that it subs for the development. A present running firm may likewise endure if the expense of creation of current item is antagonistically influenced by the presentation of another one, potentially causing extension diseconomies. Boot and Thakor utilized a hypothetical model in the year 1997 to ex that clarify likelihood of advancement in the money related part ascends with specialization and rivalry. Bhattacharyya and Nanda appeared in their examination work in the year 2000 that higher piece of the overall industry and progressively created customer connections increment the motivating force of venture banks to advance. White explained in the year 2000 that the mechanical perspective on Financial Innovation. New Intellectual Technologies as Derivative Pricing Models are credited with invigorating the development and advancement of an assortment of new agreements. Various types of subordinates were created and conceivable because of certainty appeared by businesspeople in the estimating strategies and supporting the dangers in rehearsing of new agreements. Different types of developments, for example, new hazard the executives frameworks and measures, on-line retirement arranging administrations like Financial Engines, and new valuation methods like genuine alternatives plainly were encouraged by both scholarly and Information Technology Innovations.

RESEARCH METHODOLOGY & OBJECTIVES

Objectives of the study: There are only three objectives which have to be studied as following:

- To ascertain the concept and types of financial innovation
- To reflect categories, classifications and significance of Financial Innovation
- To reflect the impact of Financial Innovation in various sectors

Research Methodology: The present study is based on secondary data; the required data has been borrowed from various RBI Bulletins, Journals, Magazines, News papers like Economic Times, Business Line, TOI, websites of GOI, www.data.gov.in etc. The paper has been analyzed in descriptive manner and reflecting various dimensions.

Significance of the study: Financial Innovations are helping to reduce the costs of agencies, facilitating to risk sharing, complete the market needs, and ultimately improving the locative efficiency and economic growth of the country, hence focusing on the bright side of Financial Innovation. Some countries where Financial Institutions are reflecting on Financial Innovations better able to translate growth opportunities into GDP. Financial Innovation is directly associated with higher level of economic growth. Innovations in financial intermediaries, which may be helpful to the countries, grow faster at high levels of income. Financial Innovations have been showing to increase the material goodness of economic players. Financial Innovations such as credit cards and home equity loans allow households to keep their consumption smooth, without sufficient incomes.

FINANCIAL INSTRUMENTS IN FINANCIAL INNOVATIONS

There are various types of Financial Instruments which have been used for Financial Innovations as described following:

Triple Option Convertible Debentures (TOCD): These debentures first time gave by Reliance Power Limited with the size of ₹ 2,172 Crore. There were no outpourings of enthusiasm for starting five years. These debentures diminished the reliance on the Financial Institutions and costs for gliding the issue turned out to be just 2.62 percent of complete size which was extremely low in contrast with 10-12 percent for an overall population issue.

Deep Discount Bonds (DDB): The financial specialists who ready to put resources into these bonds got charge focal points and can wipe out the re-venture hazard. From the guarantor's side the issue cost was spared as it included no prompt assistance cost and lower successful expense and renegotiating hazard additionally dispensed with.

Floating Rate Notes (FRN): These securities gave first time by Tata Sons with the base pace of 12.5 percent and most noteworthy pace of 15.5 percent and a reference pace of 364 T-Bill yields, which scored at 9.85 percent. The financial specialists who have put resources into these planes would get an arrival as per referenced pace of return. They would likewise get higher than the announced pace of return contingent on the changes in the reference rate.

Inflation Link Bonds (ILB): These ILB protections offer a chance to financial specialists to fence against expansion. The financing cost of ILB is fixed based yet the fundamental chief sum would move with the swelling rates in the nation. Banks and other Financial Institutions generally purchase discount and make retail advertise for these sorts of protections.

Secured Premium Notes (SPN): These sorts of bonds first time gave by TISCO in July, 1992. These kinds of monetary Instruments were completely made sure about against the colossal extent of organization's advantages and financial specialists needed to address a premium over the market cost on the possessing of these instruments.

Pension Funds (PFs): The worldwide experience shows that Pension Funds have in reality given more lift to the advancement of corporate obligation showcases in the two terms as interest for corporate securities and furthermore liquidity separated from improving the market structure. Annuity Fund has additionally been considered as major triggers of Financial Innovation as it legitimately or in a roundabout way energizes Product Innovation as well as help in the advancement of benefit upheld protections. The nearness of PFs in the security advertise help to build the accessibility of assets for significant stretch on one hand and will improve the advantage risk confound that regularly emerges in ventures with long incubation periods on other hand.

Economy Growth Futures (EGF): This is an exceptional Futures Contract that might be brought up in India. Right now ought to be a speculative record made based on development of an economy. That

might be estimated based on development 3, 6, 9, a year. Each quarter of the year the development might be estimated and contrasted and Future Contract.

Credit Default Swaps (CDS): CDS have developed quickly in the credit hazard advertise since their origin in the mid 1990s. Specifically condition CDS market will become as fundamental to the administration of acknowledge chance as the loan cost swap showcase is to the administration of market chance.

Credit Linked Note (CLN): This subordinate CLN advertise is one of the quickest developing in the credit subsidiaries showcase. This is a blend of an ordinary note and a credit alternative and it is a standard note with coupon, development and reclamation, it appears on asset report equivalent to the credit default swap. Under this arrangement, the cost of this subordinate is connected with the presentation of a reference resource.

Climate Derivatives: Weather Derivatives are significant instruments to fence against misfortunes happening because of dubious climate conditions and might be useful to lessen the unfavorable effect of climate on an organization's gainfulness. These sort subordinates might be named as a budgetary climate subordinate agreement whose result will rely upon future climate occasions. The settlement estimation of these climate occasions related with the subsidiaries are resolved from a climate list at a specific time. These subsidiaries are Financial Instruments which might be utilized by associations to decrease the hazard related with dubious climate conditions.

Indian Depository Receipts (IDR): After the accomplishment of American Depository Receipts (ADR) and Global Depository Receipts (GDR) the SEBI permitted outside organizations to bring capital up in India through Indian Depository Receipts (IDR). The IDR might be comprehended as a perfect representation of notable ADR and GDR. Remote organizations issue the offers to an Indian Depository through IDR, which would help to give Depository Receipts to Indian financial specialists. The Depository Receipts would be recorded on Indian Stock Exchanges and would be unreservedly transferable. The genuine portions of the IDRs which would be held by an Overseas Custodian will allow the Indian Depository to give the IDRs. The Overseas Custodian must contains a Foreign Bank who have affirmed by account service of India to convey their capacities as a caretaker while the Indian Depository should be enlisted with the Security and Exchange Board of India (SEBI).

FINANCIAL INNOVATION AND FINANCIAL SECTORS

Financial innovation has completely changed the world from the old time when man invented the concept of interest in Mesopotamia, paper money in China to the present Debt and Equity based mutual funds. There are various tools which are making very fruitful impact in financial sectors via Financial Innovations:

- Mode of payment (as Credit and Debit Cards, ATMs).
- Credit products (as Credit Cards, Subprime Mortgages, and Student Debt).
- Investment options (as Mutual Funds, Index Funds, and ETFs).
- A full range of derivatives (as Options, Plain Vanilla Swaps and Forward, as well as CDOs)
- Funding mechanism (Venture Capital and Private Equity).

Technological opportunity: The development of new technology motivates Financial Innovation by reducing the cost of financial services and financial instruments due to use of computers and telecommunication which has improved the quality and reliability of data. Financial Innovations are faster in certain types of technologies like Mobile phones, computer hardware etc.

Changes in the Regulatory Body: Historically innovations take place to depolarize the regulations, and the regulations are made to counter the innovative ways firms use to depolarize the rules &regulations. It can be cleared that each and every cause to the other, but it may not be cleared how to significant such effects have actually been.

Changes in Market Conditions: Financial Innovations are on very basic level drivers of the money related market. Firms are offering new items to fulfill the necessities of the clients. The present structure of the money related markets, level of rivalry in monetary part, simplicity of section, productivity, degree of advancement and specialization among different sorts of Financial Instruments, association of market powers with rules and guidelines impact Financial Innovations. Changes in the International Financial Environment and expanding mix of residential and International Financial Markets may likewise lead the Financial Innovation.

Unsure Financial Environment: Low, High, factor swelling, loan fees and trade rates, increment in Government shortfalls and their impacts on loan costs and money related markets, gliding trade rates: Many Financial Innovations offer assurance against changes in the monetary condition particularly changes in the pace of trade and premium.

Legitimate Environment: Legal condition like principles guidelines and advancements are complicatedly connected where guideline is a significant reason for development while development here and there prompts a requirement for new guideline. It might prompt Financial Innovation because of formation of motivator for monetary markets to cover the guidelines that limit their capacity to gain benefits.

Monetary Intermediaries: Firms and organizations who hold budgetary resources like advances, securities, value protections and issue of liabilities including stores, protection arrangements, annuity commitments, common reserve shares, and so on to themselves. Subsequently an intermediating of assets among obligation holders and definitive speculations has been committed.

Financial Facilitators: Firms and companies who facilitate the financial transactions in the primary issuers of financial liabilities such as governments, enterprises, household borrowers and the investors in purchasing these instruments. The stock brokers, securities underwriters, makers, dealers, investment bankers, mortgage bankers, financial advisers, rating agencies, accountants, financial analysts etc. are acting as financial facilitators.

FINDINGS

- Reliance Power Limited has become the first Indian as well as Asian company to issue a 100-year Yankee Bond in the US.
- India has also introduced its own version of the Indian Depository Receipt as ADR/GDR.
- In the year 2012, RBI has been awarded with Dufrenoy Prize by the Observatory for Responsible Innovation (ORI) for its precautionary approach in regulating the derivatives market with the direction to facilitate the financial innovation in a responsible manner.
- Infect, India has made significant changes in its economic policy management in last few years which reflected in the economy progress.

SUGGESTIONS

- New Financial Products must be very straightforward and simple for Indian Financial Markets.
- Investors who are going to invest in various plans must be able to calculate the risks being undertaken without undue reliance on credit ratings agencies.
- There must proper disclosure in rules and regulations.
- Interests of the loan providers and securitized assets must be aligned with the interests of investors who have already invested in such plans.

IMPLICATIONS OF THE STUDY

There is a direct impact Financial Innovations on the economy of the country as asset prices, international price relationships, and market behaviour. The Financial Innovations bring numerous upgrades in the money related condition of the nation and now become an essential piece of the economy to address the issues of present worldwide budgetary framework and condition. In any case,

policymakers ought to have put forth proper strategies and more attempts ought to be taken to advance the part of Financial Innovations for keep up the development and improvement that need to lead the nation to a way of turning into a superpower on the planet as all the Financial Innovations and advances drive the monetary development and increment expectations for everyday comforts of the compatriots.

CONCLUSION

Financial Innovations are really for government assistance upgrading in light of the fact that these achieves a decrease in the expense of capital of the organization and improvement in the monetary intermediation process without an analogical increment in money related hazard. The advantages of rising capital markets are estimated regarding factors like, lower evaluating, diminished expense of capital, relieved hazard exposures, more extensive access to capital and expanded liquidity. Monetary Innovations ought to make the development of capital increasingly effective, chance administration more focused on, supporting better coordinated, and exchanging less expensive. In other manner Financial Innovations additionally should to contribute for better administration and move of credit chance.

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On studying the inter-relationship amongst the facilitating factors for clinical reasoning of occupational therapy

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ABSTRACT
Present research is an exploratory as well as application based research which tries to explore the various aspects of occupational therapy including its history , various treatments associated with it . Thereafter, it explores the various factors for the successful clinical reasoning of Occupational therapy and tries to study the inter-relationship amongst them using ISM methodology .

Keywords: Occupation Therapy; ISM methodology ; Light Therapy; Clinical Research

INTRODUCTION

American Occupational Therapy Association (AOTA), was founded in 1917 and the profession of Occupational Therapy was officially named in 1921 [1]. Initially the titles such as "work-cure", "ergo therapy"(ergo being the Greek root for "work"), and "creative occupations" were discussed as substitutes, but ultimately, none possessed the broad meaning that the practice of occupational therapy demanded. William Rush Dunton ‘s statements about occupational therapy founded some of the assumptions regarding the profession . These assumptions include:

- Occupation has a positive effect on health and well-being.
- Occupation creates structure and organizes time.
- Occupation brings meaning to life, culturally and personally.
- Occupations are individual. People value different occupations [2].

The emergence of occupational therapy hence challenged the views of mainstream scientific medicine. Principles and techniques of occupational therapy includes but not limited to physical therapy, nursing, psychiatry, rehabilitation, self-help, orthopedics, and social work—to enrich the profession's scope.

1.1 History of Occupational Therapy

The entry of the United States into World War I was also a crucial event in the history of the profession of occupational therapy. With entry into World War II , occupational therapy underwent dramatic growth and change with the upgradation of occupational therapists to include the skills which includes use of activities such as crafts and the activities of daily living. Entry and exit criteria were established, and the American Occupational Therapy Association (AOTA) advocated for steady employment, decent wages, and fair working conditions [3]. ***Occupational science***, the study of occupation, was created in 1989 as a tool for providing evidence-based research to support and advance the practice of occupational therapy, as well as offer a basic science to study topics surrounding "occupation" [4]. In addition, occupational therapy practitioner's roles have expanded to include political advocacy due to AOTA [AOTA, 2017] [5].

1.2 Activities related to Occupational Therapy [6]

According to AOTA's Occupational Therapy Practice Framework: Domain and Process, 3rd Edition (OTPF-3), an occupation is defined as any type of meaningful activity in which one engages in order to "occupy" one's time. These occupations may be goal-directed, task-oriented, community-oriented, depending on one's values, beliefs, context, and environment. The following are examples of such occupations:

- **Regular and instrumental activities of daily living (ADLs and IADLs)** : Where regular activities includes taking care of one's self and body such as toileting and toilet hygiene, dressing, swallowing/eating, feeding , personal hygiene and grooming etc. , instrumental activities of daily living (IADLs) require more complex interactions such as taking care of others, care of pets, child rearing , home establishment and managements, meal preparation and cleanup etc.
- **Rest and sleep**: These activities are related to obtaining restorative rest and sleep to support healthy, active engagement in other occupations". Examples of rest and sleep include: Rest, sleep preparation, and sleep participation.
- **Education**: These activities are needed to support one's learning, participation, and accessibility within an educational environment. Examples include formal education participation, informal personal education needs or interests exploration (beyond formal education), and informal personal education participation.
- **Work** : Employment seeking and acquisition and Job preparation : This involves preparation , act of participation as well as follow up for interviews . Similarly, job performance includes activities in which a person carries out their job requirements i.e. work skills, work patterns, time management, interactions and relationships with coworkers/managers/customers, supervision, production, initiation, etc.
- **Miscellaneous activities** : This includes play exploration and participation ; leisure exploration and participation and social participation.
- **Global occupational therapy :** As the profession of Occupational therapy might require the therapist to travel to different cities or countries, understanding of different cultures and its communities are therefore becoming crucial to occupational therapy ethos. Effective occupational therapy practice includes acknowledging the values and social perspectives of each client and their families.
- **For common mental disorders :** Many workers have an increased risk of developing common mental disorders (CMDs) in the workplace due to job stressors. These CMDs may include anxiety disorders, alcohol dependence, addiction-related disorders, suicidal ideation etc. which often results in the deteriorated habits. For treating such CMDs , occupational therapists often use a combination of therapies suggested by disciplines of medicines , public health and psychology to increase patient' performance and self-esteem.

The article is arranged as follows . Section 2 presents the literature review on the case problems associated with occupational therapy in different facets . This includes occupational therapy as a learning disability therapy or using occupational therapy to calculate user experience . Section 3 presents the various criteria or factors involved in success of occupational therapy. Section 4 presents the ISM methodology and its applications to the case example.

CASE PROBLEMS [1-6]

2.1 Occupational therapy as a learning disability therapy

When dealing with mentally challenged child , occupational therapist may take variety of healing forms such as promoting wellness programs in schools to prevent childhood obesity, improve eating habits ; facilitating handwriting development through developing fine motor and writing readiness skills in school-aged children ; teaching coping skills to a child with generalized anxiety disorder ;

consulting with teachers, counselors, social workers, parents/ caregivers in areas such as sensory processing, motor planning, visual processing, sequencing, transitions between schools, etc.

2.2 Outpatient and acute care

For outpatients , Occupational therapy practitioners conduct 1:1 treatment sessions and group interventions to address leisure, health literacy and education, modified physical activity, stress/anger management, healthy meal preparation, and medication management. For acute care, occupational therapy practitioners conduct 1:1 treatment sessions, group interventions and promote hospital-wide programs targeting, leisure, stress management, pain management techniques, physical activity, healthy food recommendations and medication management.

2.3 Occupational therapy and Seasonal Affective Disorder (SAD) : Light therapy

The most common biomedical approach used by occupational therapists in the treatment of SAD is bright light therapy i.e. the use of exposure to various types of light. The treatment is done through a light therapy box, which is a commercially available device designed to emit light of a brightness and color temperature similar to sunlight. Modern devices [3] most frequently use light emitting diodes in either a light box format or alternatively in the form of a wearable device resembling a visor or glasses.[9]

2.4 Mindfulness-based cognitive therapy (MBCT)

Mindfulness-based cognitive therapy (MBCT) is an intervention that aims to increase meta-cognitive awareness to the negative thoughts and feelings associated with relapses of major depression. MBCT focuses on meta-cognitive awareness techniques, which are said to change the relationship between one's thoughts and feelings and tries to enhance positive thinking through meditation and self-awareness exercises that will give patients the ability to identify them.

3. FACILITATING FACTORS ASSOCIATED WITH CLINICAL REASONING OF OCCUPATIONAL THERAPY [7-11]

- **Socio-cultural Conditions :** This theme includes three subthemes. These include the beliefs of the client about their disease and the role of the therapist; the attitude and confidence of the occupational therapist, and social attitudes to disability.

----**Client beliefs (CF) :** The belief of the client and the family about occupational therapy services and their trust in the therapist are the facilitating factors affecting continuation of treatment and thus clinical reasoning.

------**Therapist values and beliefs (TVB) :** The belief and confidence of the therapist in his/her capabilities and ability to attend to the demands of the client is an important factor affecting interaction with clients and evaluation and planning for him/her. This increased the client participation in the treatment process.

--------**Social attitude to disability (SAD) :** The community has shortcomings in understanding disabled people and their problems. Therefore it is necessary to consider the situation of the client in the society when prescribing assistive equipment. Otherwise, because of the attitude of the society this device may be a barrier to participation in daily life in public places.

- **Client educational attributions (CEA) :** The education level of the client or family is a factor that influenced the treatment plan, efficiency, and treatment results.
- **Therapist educational attributions(TEA) :** Similarly the competency and experience of the therapist as well as access to current knowledge could influence their clinical reasoning.
- **Personal attitudes of therapists (PAT) :** According to the participating occupational therapists, their reasoning in clinical tasks is affected by numerous factors such as their personal attitudes, the support of the health environment and financial constraints.
- **Knowledge of managers of rehabilitation services (KoM) :** The lack of knowledge of the managers of services is the first sub-theme relating to the workplace environment of the therapist.

Lack of understanding and recognition of occupational therapy by hospital directors potentially affects reasoning and clinical decision-making.

- **Better clinical facilities and resources (BCFR) :** The limited number of occupational therapy clinics in the community is a factor that impedes occupational therapist's clinical reasoning. Availability or lack of appropriate physical facilities can facilitate or impede the clinical reasoning of occupational therapists. Limited facilities and equipment for conducting interventions and lack of culturally appropriate tests are barriers to appropriately evaluating therapy results .
- **Knowledge and acceptance of client (KAC):** From the perspective of the participants, evaluating the knowledge and acceptance of the client in relation to the disease and occupational therapy services may indicate the expectations of the clients from such services [12-16].
- **Co-operation of clients and their families (COCF):** Participants believed that to encourage the cooperation of clients and their families, it is important to consider their beliefs, for example respecting their religious beliefs.
- **Therapist's self-efficacy & confidence [TSE&C] :** According to Chapparo [17] therapist perceptions of their ability to complete planned actions has a direct effect on their feeling of self-efficacy and self-confidence. When therapists, because of organizational constraints, have a tenuous sense of self-efficacy, their actions do not always result in appropriate reasoning and thus positive therapy outcomes.
- **Traditional beliefs and limited awareness [TB&LA] :** The participants in the research stated that traditional beliefs and limited awareness in society about disability, limits the clinical reasoning of the therapists within their clinical environment. Disabled people in Iranian society are either isolated or pitied [18].
- **Effect of economic status and Diagnosis [EES&D] [21]:** All participants highlighted the significance of economic status and diagnosis upon clinical reasoning especially relating to assessment, planning and implementation of therapeutic interventions. Many clients of private occupational therapy centers cannot afford therapy due to lack of health insurance coverage for occupational therapy. In addition, many occupational therapists provide or limit their services in proportion to the financial status of the clients.
- **Workplace environment [WE]:** Lack of knowledge of managers and the policies applied to the organizations providing rehabilitative services have negatively influenced the process of clinical reasoning. Rogers and Massagatani have also emphasized that the expectations of the therapeutic environment can influence the clinical reasoning of the therapists [21] .

3. INTERPRETIVE STRUCTURAL MODELLING METHODOLOGY

Interpretive structural modelling methodology or ISM [23] is a known technique to map the relationships amongst the relevant elements as per decision maker's problems in a hierarchical manner. Starting with the identification of elements , it proceeds with establishing the contextual relationships between elements (by examining them in pairs) and move on towards developing the structural self-interaction (SSIM) matrix using VAXO [23] and then initial reachability matrix and final reachability matrix and rearranging the elements in topological order using the level partition matrices . A *Mic-Mac* analysis is performed afterwards which categorize the variables as per the driving and dependence power in to autonomous, dependent, driver and linkage category. Finally, a diagraph can be obtained.

4. DEVELOPMENT OF ISM MODEL : CASE EXAMPLE

Around 14 facilitating factors developed in section 3 viz. Client beliefs (CB); Therapist values and beliefs (TVB) ; Social attitude to disability (SAD); Client educational attributions (CEA); Therapist educational attributions (TEA); Personal attitudes of therapists (PAT); Knowledge of managers of rehabilitation services (KoM) ; Better clinical facilities and resources (BCFR); Knowledge and acceptance of client (KAC); Co-operation of clients and their families (COCF); Therapist's self-

efficacy & confidence [TSE&C]; Traditional beliefs and limited awareness [TB&LA]; Effect of economic status and Diagnosis [EES&D]; Workplace environment [WE] are recognized and have been further studied for the possible interrelationship amongst them .

4.1 Construction of Structural self- interaction Matrix (SSIM)

This matrix gives the pair-wise relationship between two variables i.e. I and j based on VAXO. SSIM has been presented below in Fig 1.

4.2 Construction of Initial Reachability Matrix and final reachability matrix

The SSIM has been converted in to a binary matrix called the initial reachability matrix shown in fig. 2 by substituting V, A, X, O by 1 or 0 as per the case. After incorporating the transitivity, the final reachability matrix is shown below in the Fig 3.

S. No.	Barriers	1	2	3	4	5	6	7	8	9	10	11	12	13	14
		CB	TVB	SAD	CEA	TEA	PAT	KoM	BCFR	KAC	COCF	TSE&C	TB&LA	EES&D	WE
1	CB		O	V	A	O	A	A	A	X	X	A	A	A	A
2	TVB			V	O	A	V	V	V	V	V	V	A	V	V
3	SAD				X	X	V	X	V	V	V	V	A	A	X
4	CEA					V	V	V	V	V	V	V	A	V	V
5	TEA						V	V	V	V	V	V	A	V	V
6	PAT							X	X	X	X	X	A	A	X
7	KoM								V	V	V	V	A	V	V
8	BCFR									V	V	V	A	V	V
9	KAC										V	V	A	V	A
10	COCF											X	A	X	X
11	TSE&C												A	X	X
12	TB&LA													V	V
13	EES&D														X
14	WE														

Fig 1: SSIM matrix for pair wise relationship amongst barriers

S. No.	Barriers	1	2	3	4	5	6	7	8	9	10	11	12	13	14
		CB	TVB	SAD	CEA	TEA	PAT	KoM	BCFR	KAC	COCF	TSE&C	TB&LA	EES&D	WE
1	CB	1	1	1	0	0	0	0	0	1	1	0	0	0	0
2	TVB	0	1	1	0	0	1	1	1	1	1	1	0	1	1
3	SAD	0	0	1	1	1	1	1	1	1	1	1	0	0	1
4	CEA	1	0	1	1	1	1	1	1	1	1	1	0	1	1
5	TEA	0	1	1	0	1	1	1	1	1	1	1	0	1	1
6	PAT	1	0	0	0	0	1	1	1	1	1	1	0	0	1
7	KoM	1	0	1	0	0	1	1	1	1	1	1	0	1	1
8	BCFR	1	0	0	0	0	1	0	1	1	1	1	0	1	1
9	KAC	1	0	0	0	0	1	0	0	1	1	1	0	1	0
10	COCF	1	0	0	0	0	1	0	0	0	1	1	0	1	1
11	TSE&C	1	0	0	0	0	1	0	0	0	1	1	0	1	1
12	TB&LA	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	EES&D	1	0	1	0	0	1	0	0	0	1	1	0	1	1
14	WE	1	0	1	0	0	1	0	0	1	1	1	0	1	1

Fig 2: Initial reachability matrix

S. No.	Barriers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
		CB	TVB	SAD	CEA	TEA	PAT	KoM	BCFR	KAC	COCF	TSE&C	TB&LA	EES&D	WE	D.P
1	CB	1	1	1	1	1	1	1	1	1	1	1	0	1	1	12
2	TVB	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13
3	SAD	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13
4	CEA	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13
5	TEA	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13
6	PAT	1	1	1	0	0	1	1	1	1	1	1	0	1	1	11
7	KoM	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13
8	BCFR	1	1	1	0	0	1	0	1	1	1	1	0	1	1	10
9	KAC	1	0	0	0	0	1	1	1	1	1	1	0	1	1	9
10	COCF	1	0	0	0	0	1	1	1	1	1	1	0	1	1	9
11	TSE&C	1	0	0	0	0	1	1	1	1	1	1	0	1	1	9
12	TB&LA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14
13	EES&D	1	0	1	1	1	1	1	1	1	1	1	0	1	1	12
14	WE	1	1	1	0	1	1	1	1	1	1	1	0	1	1	12
	De.P	14	10	11	8	9	14	13	14	14	14	14	1	14	14	

Fig 3 : Final reachability matrix

D.P : Driving power ; De.P : dependence power

4.3 Level Partition

From the final reachability matrix, reachability and final antecedent set for each factor are found. The elements for which the reachability and intersection sets are same are the top-level element in the ISM hierarchy. After the identification of top level element, it is separated out from the other elements and the process continues for next level of elements. Reachability set, antecedent set, intersection set along with different level for elements have been shown below in table 1.

Table 1: Iteration

S.No.	Reachability set	Antecedent set	Intersection set	Level
1	1,6,8,9,10,11,13,14	1,2,3,4,5,6,7,8,9,10,11,12,13,14	**1,6,8,9,10,11,13,14**	**I**
2	1,6,7,8,9,10,11,13,14	1,2,3,4,5,6,7,9, 10,11,12,13,14	**7**	**II**
3	1,3,6,7,8,9, 10,11,13, 14	1,2,3,4,5,6,7,12,13,14	**3**	**III**
4	1,2,3,6,7,8,9,10,11,13,14	1,2,3,4,5,6,7,12,14	**2**	**IV**
5	1,3,5,6,7,8,9,10,11,13,14	1,2,3,4,5,7,12,14	**5**	**V**
6	1,3,4,5,6,7,8,9,10,11,13, 14	1,2,3,4,5,7,12	**4**	**VI**
7	1,3,4,5,6,7,8,9,10,11,12, 13,14	12	**12**	**VII**

4.4 Classification of factors

The critical success factors described earlier are classified in to four clusters *viz*. autonomous factor, dependent factors, linkage factors and independent / Driving factors are mentioned below.

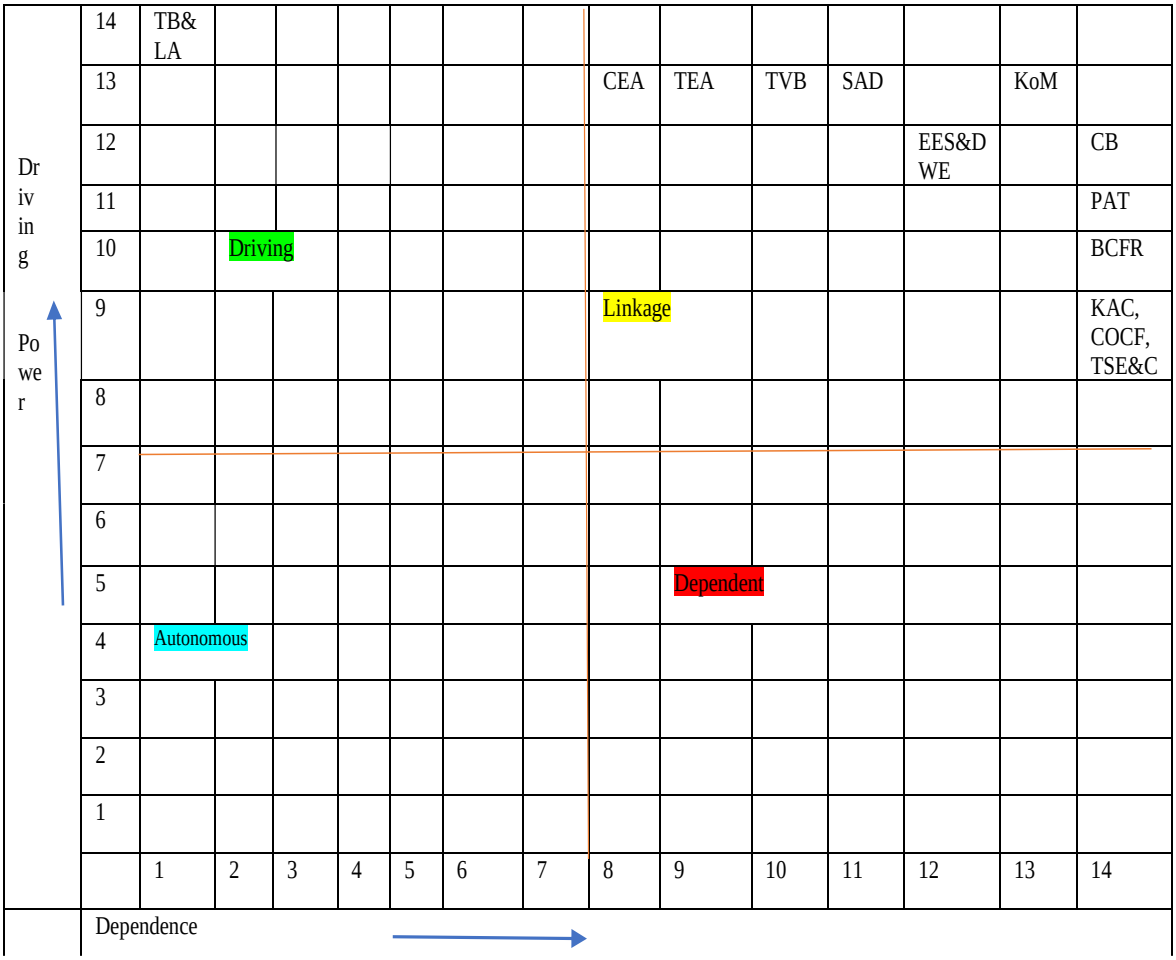

Fig. 4.Driving Power and Dependence Diagram

4.5 ISM Diagraph

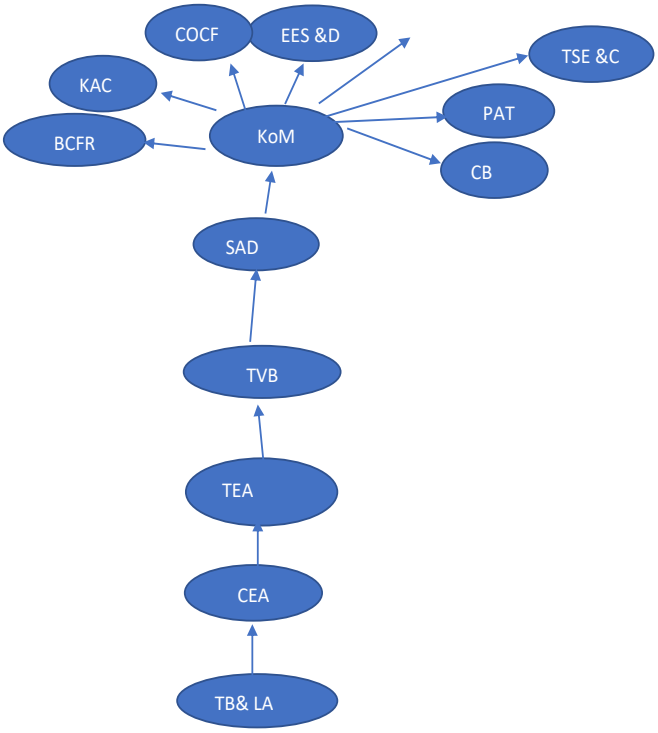

Fig 5. ISM Diagraph

5. FUTURE DIRECTIONS

User experience and Occupational Therapy : Photovoice Visual Method [22]

Photovoice, a participatory visual method is an occupational therapy method in which service user participants used photography to answer the research questions. A final set of images with corresponding statements outlining research themes was agreed. The participants experienced the occupational therapy department as a distinct therapeutic place where they could practice skills, try out choices and manage themselves, while engaged in relevant activities for their personal recovery. An example is a research conducted by [22].

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On an attempt to study the inter-relationship amongst various challenges faced by Sports Scientists and Sports Analytics in developing countries

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ABSTRACT
In the past, many believed that the key to conquering the opponent in any professional sport is to make the player or the team better – be it making them stronger, faster, or more intelligent. Gone are the days when 'analytics' was limited to be mere 'clipboard statistics' and the intuition built by coaches on the basis of raw video footage of games. This is not the case anymore. From handling media contracts and merchandising to evaluating individual or team performance on matchday, analytics is slowly changing the landscape of sports. However, it is not that easy to implement practically. Sports scientist do face a series of challenges . Present research work therefore explores the various challenges faced by sports scientists in context of sports analytics . It further studies the inter-relationship amongst them using ISM methodology .

Keywords: Sports scientists; sports analytics ; ISM Methodology ; developing countries

1. INTRODUCTION

The amount and quality of information available to decision-makers within the sports organization have increased exponentially over the last two decades. Prime reasons being the innovation in sports science; in-depth records made by trainers and improved processing power and lower cost of storage . Of late, the adoption of motion capture technology and wearable devices has proved to be a real game-changer in sports, where every movement on the field can be tracked and recorded. Today, many teams in a variety of sports such as Boston Red Sox and Houston Astros in Major League Baseball (MLB), San Antonio Spurs in NBA and teams like Arsenal, Manchester City and Liverpool FC in football (soccer) are adopting analytics in different capacities.

Needless to say, all the crucial sports data being generated today need equally good analytics techniques to extract the most value out of it. This is where Sports Analytics comes into the picture. Sports analytics therefore is defined as the use of analytics on current as well as historical sport-related data to identify useful patterns, which can be used to gain a competitive advantage on the field of play. Understanding data and how it can be used in sports – to improve performance and maximize profits – is now deemed by many teams to be the key differentiator between success and failure. And it's not just success that teams are after – it's sustained success, and analytics that goes a long way in helping teams achieve that. There are several techniques and algorithms which fall under the umbrella of Sports Analytics. Machine learning, among them, is a widely used set of techniques that sports analysts use to derive insights. It is a popular form of Artificial Intelligence where systems are trained using large datasets to give reliable predictions on random data. With the help of a variety of classification and recommendation algorithms, analysts are now able to identify patterns within the

existing attributes of a player, and how they can be best optimized to improve his performance. Using cross-validation techniques, the machine learning models then ensure there is no degree of bias involved, and the predictions can be generalized even in cases of unknown datasets. Analytics is being put to use by a lot of sports teams today, in many different ways.

Here are some key use-cases of sports analytics 1,2,3:

- It is now possible to assess a player's physiological and technical attributes and work on specific drills in training to push them to an optimal level.
- Developing search-powered data intelligence platforms seems to be the way forward. The best example for this is Tellius, a search-based data intelligence tool which allows you to determine a player's efficiency in terms of fitness and performance through search-powered analytics.
- Analytics also helps the coaches manage their team better. For example, Adidas has developed a system called miCoach which works by having the players use wearables during the games and training sessions. The data obtained from the devices highlights the top performers and the ones who need rest.
- It is also possible to identify and improve patterns in a team's playing styles, and developing a 'system' to improve the efficiency in gameplay.
- For individual athletes, real-time stats such as speed, heart rate, and acceleration could help the trainers plan the training and conditioning sessions accordingly.
- By analyzing the real-time training data, it is possible to identify the fitter, in-form players to be picked for the game. Not just that, analyzing opposition and picking the right strategy to beat them becomes easier once you have the relevant data insights with you.
- Different data visualization techniques can be used not just with historical data but also with real-time data, when the game is in progress.
- Boosting merchandising : By analyzing data related to the things fans buy , the kind of food they buy from the stadiums eateries etc. , retailers and club merchandise stores can store the fan-favorite merchandise and other items in adequate quantities, so that they never run out of stock.
- Analyzing sales via online portals and e-stores also help the teams identify the countries or areas where the buyers live. This is a good indicator for them to concentrate sales and marketing efforts in those regions.
- Analytics also plays a key role in product endorsements and sponsorships. Determining which brands to endorse, identifying the best possible sponsor, the ideal duration of sponsorship and the sponsorship fee are some key decisions that can be taken by analyzing current trends along with the historical data.

2. CHALLENGES IN SPORTS ANALYTICS [1-27]

2.1. Lack of Knowledge and awareness (LKA): Although the advantages offered by analytics are there for all to see, many sports teams have still not incorporated analytics into their day-to-day operations. Lack of awareness seems to be the biggest factor here. Many teams underestimate or still don't understand, the power of analytics.

2.2 Problem in choosing right Data(PCD) : Choosing the right Big Data and analytics tool is another challenge. When it comes to the humongous amounts of data, especially, the time investment needed to clean and format the data for effective analysis is problematic and is something many teams aren't interested in.

2.3. Rising demand for analytics (RDA) : Another challenge is the rising demand for analytics and a sharp deficit when it comes to supply, driving higher salaries. Add to that the need to have a thorough understanding of the sport to find effective insights from data – and it becomes even more difficult to get the right data experts.

2.4. Gaining competitive advantage (GCA): The big challenge in sports science is to use this data to gain a competitive advantage, whether in real time during the game or to help in training, preparation, or recruitment. But while researchers have made significant progress, there are also important hurdles barring the way.

2.5. Dynamism of human body (DHB) : The biggest challenge sports science practitioners face today, and will continue to struggle with, is the fact that the human body is dynamic in its truest essence.

2.6. Athlete Monitoring and subsequent performance (AMSP) : Personally, within the sports technology field, there exists challenges from practitioners to continually provide new parameters and information which might lead to a competitive advantage for athlete monitoring and subsequent performance. Therefore it is crucial that anything that is new has been fully validated and is reliable to use.

2.7. Availability of various technologies and available services (AVT) : In terms of being able to select the product(s) that will ultimately have the most impact on how we operate on a daily basis.

2.8. Being innovative (BI) : In an attempt to be innovative and looking to introduce these new products can obviously be very important, however we will always need to be mindful that we are not doing this at the expense of the consistently proven, and often overlooked, more basic areas of sports science and conditioning.

2.9. Appropriate collating of available data (ACD) : The increased ease of collection of athlete bio markers e.g Saliva & Blood samples has led to a massive increase in the amount of data, practitioners can collect on their athletes. The challenge facing practitioners is collating these disparate data sources in order to positively impact their decision making in a manner that will lead to a reduction in injury and optimize athlete performance.

2.10. Creation of valid action plan [CVP] : The biggest challenge we face as sports science professionals is taking the data we've collected and creating a validated action plan from it. As athlete monitoring technologies and data management systems continue to evolve, it's really about committing to a system of continuous quality improvement strategies to create an integrated system that meets our needs.

2.11. Challenge of data analytics [CDA] : The promise of wearable tech, the internet of things and data analytics suggests a utopia for sports professionals to optimize training, learning and recovery but few organizations have mastered its power. Greater collaboration between leaders in sport, engineering and data science will be required to make strides in a field that could revolutionize athletic performance.

2.12. Making worth decisions (MWD): The biggest challenge we face is getting where we are just collecting data and not making any decisions or providing feedback to coaches or athletes on the data. We need to keep our analysis concise as we begin while ensuring we are using information from multiple sources as one source generally, won't give you an entire picture. You need to have a systematic approach to ensure the data which comes in, can go out being assessed, stored and communicated where necessary.

3. INTERPRETIVE STRUCTURAL MODELLING METHODOLOGY

Suggested by Warfield [28], ISM works with the following steps: It starts with identifying the relevant elements and pair-wise establishing the contextual relationship amongst them. Thereafter, a structural self-interaction matrix (SSIM) may be developed between two variables i.e. i and j establishing a "Lead to" relationship between criteria. Four symbols viz. V, A , X & O are used for establishing the relationships. It further lead to developing initial reachability matrix and then a final reachability matrix after removing transitivity. Afterwards, the reachability set and antecedent set for each criterion and for each element can be obtained from the final reachability matrix. After that a level partition matrix can be obtained based on establishing the precedence relationships and arranging

the elements in a topological order . A Mic-Mac analysis is performed categorizing the variables in to autonomous, dependent, driver and linkage category. Finally, a diagraph can be obtained.

4. CASE EXAMPLE

4.1 Challenges in Sports Analytics

The 12 possible challenges have been recognized viz. Lack of Knowledge and awareness (LKA) ; Problem in choosing right Data (PCD) ; Difficulty in matching the rising demand for analytics (DRDA) ; Challenge to gain competitive advantage (CGCA) ; Understanding of dynamism of human body (UDHB) ; Challenge in athlete monitoring and subsequent performance (CAMSP) ; Absence of various technologies and services (AVTS) ; Challenge of being innovative (CBI); Inappropriate collating of data [ACD]; Challenge in making worth decisions (CMWD) ; Problem in creation of valid action plan [PCVP] ; Challenge of data analytics [CDA] are now studied for possible inter-relationship amongst them using ISM methodology .

Fig 1: SSIM matrix for pair wise relationship amongst barriers

S. No.	Barriers	1	2	3	4	5	6	7	8	9	10	11	12
		LKA	PCD	DRDA	CGCA	UDHB	CAMSP	AVTS	CBI	ACD	CMWD	PCVP	CDA
1	LKA		V	V	V	V	V	V	V	V	V	V	V
2	PCD			V	V	O	V	V	V	X	V	V	V
3	DRDA				V	O	V	V	V	X	V	V	V
4	CGCA					A	A	A	A	A	A	A	A
5	UDHB						V	O	X	O	V	O	O
6	CAMSP							A	O	A	V	A	A
7	AVTS								X	A	V	V	V
8	CBI									A	V	O	O
9	ACD										V	V	V
10	CMWD											X	X
11	PCVP												A
12	CDA												

Fig 2: Initial reachability matrix

S. No.	Barriers	1	2	3	4	5	6	7	8	9	10	11	12
		LKA	PCD	DRDA	CGCA	UDHB	CAMSP	AVTS	CBI	ACD	CMWD	PCVP	CDA
1	LKA	1	1	1	1	1	1	1	1	1	1	1	1
2	PCD	0	1	1	1	0	1	1	1	1	1	1	1
3	DRDA	0	0	1	1	0	1	1	1	1	1	1	1
4	CGCA	0	0	0	1	0	0	0	0	0	0	0	0
5	UDHB	0	0	0	1	1	1	0	1	0	1	0	0
6	CAMSP	0	0	0	1	0	1	0	0	0	1	0	0
7	AVTS	0	0	0	1	0	1	1	1	1	1	1	1
8	CBI	0	0	0	1	1	0	1	1	0	1	0	0
9	ACD	0	1	1	1	0	1	1	0	1	1	1	1
10	CMWD	0	0	0	1	0	0	0	0	0	1	1	1
11	PCVP	0	0	0	1	0	1	0	0	0	0	1	1
12	CDA	0	0	0	1	0	1	0	0	0	0	1	1

Fig 3 : Final reachability matrix

S. No.	Barriers	1	2	3	4	5	6	7	8	9	10	11	12	
		LKA	PCD	DRDA	CGCA	UDHB	CAMSP	AVTS	CBI	ACD	CMWD	PCVP	CDA	D.P
1	LKA	1	1	1	1	1	1	1	1	1	1	1	1	12
2	PCD	0	1	1	1	1	1	1	1	1	1	1	1	10

3	DRDA	0	0	1	1	0	1	1	1	1	1	1	1	9
4	CGCA	0	0	0	1	0	0	0	0	0	0	0	0	1
5	UDHB	0	0	1	1	1	1	1	1	1	1	1	1	10
6	CAMSP	0	0	0	1	0	1	0	0	0	1	1	1	5
7	AVTS	0	0	0	1	0	1	1	1	0	1	1	1	7
8	CBI	0	0	0	1	1	1	1	1	0	1	1	1	8
9	ACD	0	1	1	1	0	1	1	1	1	1	1	1	10
10	CMWD	0	0	0	1	0	1	0	0	0	1	1	1	5
11	PCVP	0	0	0	1	0	1	0	0	0	1	1	1	5
12	CDA	0	0	0	1	0	1	0	0	0	1	1	1	5
	De.P	1	3	5	12	4	11	7	7	5	11	11	11	

D.P : Driving power ; De.P : dependence power

4.3 Level Partition

From the final reachability matrix, reachability and final antecedent set for each factor are found. The elements for which the reachability and intersection sets are same are the top-level element in the ISM hierarchy. After the identification of top level element, it is separated out from the other elements and the process continues for next level of elements. Reachability set, antecedent set, intersection set along with different level for elements have been shown below in table 4.3.1 to 4.3.7.

Table 4.3.1: Iteration I

S. No.	Reachability set	Antecedent set	Intersection set	Level
1.	**4**	**1,2,3,4,5,6,7,8,9,10,11, 12**	**4**	
2.	4 , 6, 10 , 11	1,2,3,5,6,7,8,9,10,11,12	6,10,11	
3.	4,6,10,11,12	1,2,3,5,6,7,8,9,10,12	6,10,11,12	
4.	4,6,7,8,10,11,12	1,2,3,5,7,8,9	7,8	
5.	4, 3,6, 7, 8, 9 10,11,12	1,2,3,5,9	1,3,5,9	**I**
6.	3,4,5,6,7,8,9,10,11, 12	1,2,5	5	
7.	2,3,4,5,6,7,8,9,10,1 1,12	1,2	2	
8.	1,2,3,45,6,7,8,9,10, 11,12	1	1	

Table 4.3.2: Iteration II

S. No.	Reachability set	Antecedent set	Intersection set	Level
2.	4 , 6, 10 , 11	1,2,3,5,6,7,8,9, 10,11,12	6,10,11	
3.	**4,6,10,11,12**	1,2,3,5,6,7,8,9, 10,12	6,10,11,12	
4.	4,6,7,8,10, 11,12	1,2,3,5,7,8,9	7,8	
5.	4, 3,6, 7, 8, 9 10,11,12	1,2,3,5,9	1,3,5,9	
6.	3,4,5,6,7,8,9, 10,11,12	1,2,5	5	**II**
7.	2,3,4,5,6,7,8,9,10,11,12	1,2	2	
8.	1,2,3,45,6,7,8,9,10,11,12	1	1	

Table 4.3.3: Iteration III

S. No.	Reachability set	Antecedent set	Intersection set	Level
4.	**7,8**	1,2,3,5,7,8,9	**7,8**	
5.	3,7, 8, 9	1,2,3,5,9	1,3,5,9	
6.	3,5,7,8,9	1,2,5	5	
7.	2,3,5,7,8,9	1,2	2	
8.	1,2,3,5,7,8,9	1	1	**III**

Table 4.3.4: Iteration IV

S. No.	Reachability set	Antecedent set	Intersection set	Level
5.	**3, 9**	1,2,3,5,9	1,3,5,9	
6.	3,5,9	1,2,5	5	
7.	2,3,5,9	1,2	2	**IV**
8.	1,2,3,5,9	1	1	

Table 4.3.5: Iteration V

S. No.	Reachability set	Antecedent set	Intersection set	Level
6.	**5**	1,2,5	5	
7.	2,5	1,2	2	**V**
8.	1,2,5	1	1	

Table 4.3.6: Iteration VI

S. No.	Reachability set	Antecedent set	Intersection set	Level
7.	**2**	1,2	2	
8.	1,2	1	1	**VI**

Table 4.3.7: Iteration VII

S. No.	Reachability set	Antecedent set	Intersection set	Level
7.	**1**	1	1	**VII**

The critical success factors described earlier are classified in to four clusters viz. autonomous factor, dependent factors, linkage factors and independent / Driving factors are mentioned below.

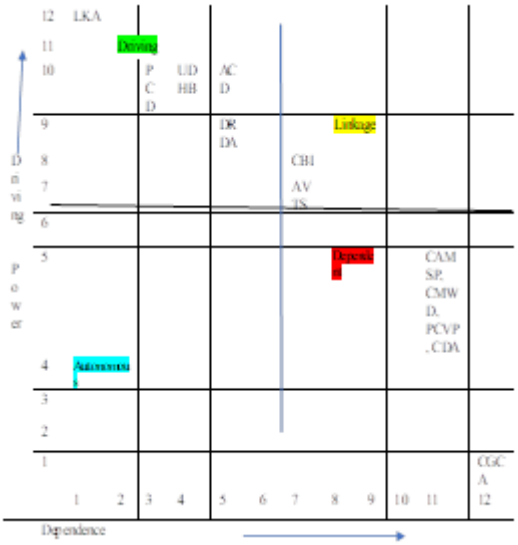

Fig. 4.Driving Power and Dependence Diagram

5. CONCLUSIONS AND MANAGERIAL IMPLICATIONS

- In conclusion, exciting times are emerging for team sports performance analysis as more and more data is going to become available allowing more refined investigations. The adaption of big data technologies for game's research may therefore provide solutions to some of the key issues outline above.

- The novel methods to analyse the data and a more comprehensive theoretical model may be within reach. This calls for a stronger multi-disciplinary approach and future collaborations between computer and sports scientists .

- The introduction of big data technologies will also require a discussions within the research community of how to share data and techniques across research teams. To make the new insights relevant for practice, a tight interchange with practitioners is required.

6. FUTURE DIRECTIONS

6.1 Big data and soccer tactics

A potential solution with respect to model building and the combination various data sources might present itself through the recent rise of big data technologies which has been already suggested as shaping the future of performance analysis in elite soccer. Big data is charecterised by the so called big data is characterized using the so-called three V's: (1) Volume, (2) Variety and (3) Velocity (Noor et al. 2015; Xue-wen and Xiaotong, 2014). Accordingly, In soccer, the velocity varies widely between real-time streams from physiological and positional data to delayed data from notational analysis during training and competition. Big data technologies specifically address how to process and store high velocity data.

6.2 Visual analytics in sports

In today's age of cut-throat competition, data-based strategies are slowly taking the front seat when it comes to crucial decision making – helping teams gain that decisive edge over their competition. Visual analytics in sports is slowly becoming the next big thing. Coaches and athletes are using the medium more and more to measure and correct technique, and to analyze team and individual performances. Video analysis software can also be used for gait analysis and biomechanics research, and in injury rehabilitation . Things such as angle of release of thrown implements; ball release velocity and the arc of travel of the thrown implement ; head and body position during technique performance and joint and segment angles and velocities can be measured effectively using video analysis of technique.

6.3 Video content analysis in sports

Research interest in sports content analysis has increased substantially in recent decades, because of the rapid growth of video transmission over the Internet and the demand for digital broadcasting applications. The massive commercial appeal of sports programs has become a dominant focus in the field of entertainment. Research on big data analytics has attracted much attention to machine learning and artificial intelligence techniques. Accordingly, content analysis of sports media data has garnered attention from various studies in the last decade. Sports data analysis is becoming large scale, diversified, and shared.

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E-HRM: "Necessity Not an Option" (With Special Reference on E-Recruitment E-Selection and E-Training)

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ABSTRACT
Technology is playing an essential role in every field today. Every business directly or indirectly take the help of technology for its day-to-day- operations. One of the main functions of business is to manage its employees. Employees, as we all know, are the greatest assets of the organisation and the process of management of employees is known as Human Resource Management. When technology is being used to perform the function of HRM it is known as E-HRM. E- HRM is the process of planning, organising, directing and controlling of employees with the help of Information Technology. In E-HRM, it is very important to attract, select and train the employees in a proper manner for the development and the prosperity of the organisation. Technology has bring a revolution in this aspect. Technology has made it easier and less reasonable to attract and select employees which earlier was very expensive. The organisation is able to use technology to gather information about the employees living in any corner of the world and vice-versa. The employees can be tested and selected from a far off place with the help of technology. When the employees are selected they have to be given some sort of training about the organisation's policies, rules and regulations and specifically about the work for which they are appointed. Due to scattered location of employees their training are also done with the help of technology. This paper would focus on the three pillars of HRM i.e. attracting (recruitment), selecting and development of employees (training). The paper will focus on the recruitment, selection and training of employees with the help of Information Technology. The discussion about the common tools of e-recruitment, e-selection and e- training adopted largely by the organisation nowadays has been discussed. Further, the paper also discusses that whether the technology can substitute HR in the future.

Keywords- E-HRM, E-recruitment, E-selection, E-training, Information Technology

INTRODUCTION

In today's era, technology is changing rapidly with every passing moment. One cannot imagine their life without the use of technology. Every place whether it is a local shop or a multinational company operating worldwide, profit or non-profit organization, any function of business whether its marketing, finance or HRM technology is being used. Today, no organization can survive without the use of technology. The use of technology helps the employees and managers of the organization to carry out their operative and administrative duties which saves their time and labor so that they can focus on more crucial aspects of their work. The field of HRM is no exception as well. We know HRM is the process of procuring, planning, developing and managing of human resources. It is management of human assets of the organization. It starts before a person enters the organization and continues after he leaves the organization. Information technology has revolutionized the task of managing human resources. In simple words, it can be said that E-HRM is the process of managing human resources of the organization with the help of technology. E-HRM involves application of technology to carry out the functions of HRM more effectively and efficiently. E-HRM helps the HR to store all the information pertaining to employees, i.e. age, qualification, salary, growth , performance, etc. with the help of which one can take decisions. "An umbrella term covering all possible integration mechanisms and contents between HRM and information technologies, aiming at creating value within and across organizations for targeted employees and management."(Bondarouk & Ruel, 2009).

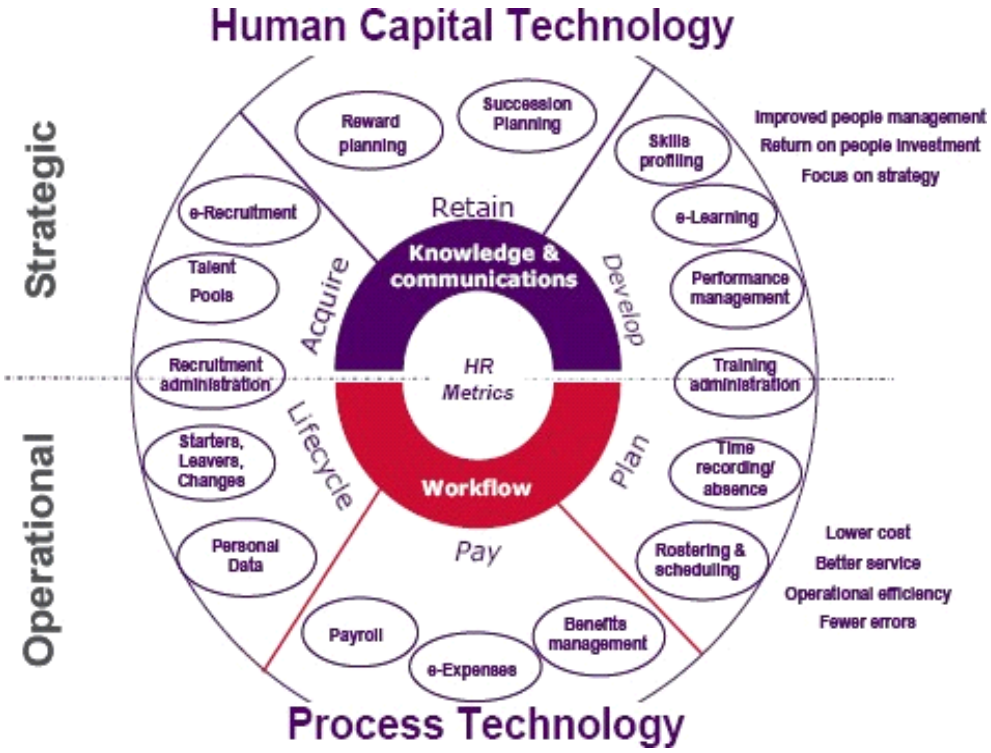
TYPES OF E-HRM

i. **Operational E-HRM:** operational HRM is related to recording and managing aerodynamic functions of HR. it includes administrative and day-to-day functions of HR like maintaining the

record of employees, their age, personal information, qualification, experience, leaves, payroll etc.

ii. **Relational E-HRM:** Relational E-HRM supports business processes like training, recruitment, performance management and so forth. Use of intranets and extranets can be used in this context. These technologies facilitate relationships between users of the systems. The emphasis of E-HRM is not on administration of HR processes, but rather on the manner in which HR tools support business processes.

iii. **Transformational E-HRM:** Transformational E-HRM is related to those HR functions which focuses more on overall strategic initiatives of the organisation. When we use E-HRM for strategic and transformational purposes, it is possible to create a change ready workforce through an integrated set of web-based tools that enables the workforce to develop in line with the company's strategic choices.



FUNCTIONS OF E-HRM

Just like HRM the functions or components of E-HRM are also manifold which includes:

E-RECRUITMENT: E-Recruitment refers to the attracting suitable candidates for the job (either permanent or temporary) within or outside the organisation with the help of Information Technology. Today, the organization can attract candidates from all over the world with the help of Information Technology. Today, most of the organisations which require larger number of employees do not prefer recruiting manually or through pen-paper mode. They post the vacancies, job description and other information related to the job on different online platforms, job sites (like naukri.com, indeed.com)to attract various job applicants from all the parts of the world. The common methods adopted by the organisation for E-Recruitment are-

i. **Online job portals-** It is the most common method of attracting probable candidates online. Almost all the big corporates are hiring employees from this method of recruitment. There are various job sites whose main motive is to act as a link between job seekers and job givers like naukri.com, indeed.com, etc. and to help the organisation find the probable employees for the job opening and vice-versa.

ii. **Recruitment notice on official sites-** This is one of the other most common methods of recruiting employees with the help of Information Technology. Every organisation especially public sector organisation post the vacancies inviting applications from the candidates suitable for the job. All the details related to the job are posted online and the interested candidates can apply for the job.

iii. **Passive Candidates-** With the help of technology and various job sites and apps like LinkedIn, the organisation can also reach out to passive candidates. They can engage with these candidates and build a relationship with them. Even if the candidates is not looking for the job right now, an encryption of the organisation is formed in the mind of the candidate and whenever he will search for the job in the near future he/she will definitely think about the organisation.

iv. **Virtual Reality-** Virtual Reality gives candidates a realistic and virtual tour of the office or the place of work of the organisation to show them their culture, working conditions, etc. Virtual Reality provides a higher level of realism and detail and further, it is less expensive.

v. **Use Data-** This is one of the internal sources of recruitment. In this method, the organisation uses its own data in context of past and present employees with the help of Human Resource Information System (HRIS) to recruit employees for the vacancies available.

E-SELECTION: E-Selection is the process of selecting a qualified person through IT who can successfully do a job and deliver various contributions to the organisation. It is the process of selection and shortlisting of the right candidates from the applications received through recruitment. Today, most of the selection process involves tests and interviews and it is not possible to conduct tests offline (by pen and paper) in every part of the country because the applicants are generally scattered to all parts of the country or even world in some cases. So, the organisation conducts online tests to test the general aptitude of the candidates and special skills required for the job. By conducting online tests and interviews all the candidates can give tests at the same time at their own place which is economical on the part of both employer and employee. This method save a lot of time and effort of the HR and does not compromise the efficiency and effectiveness of the test. This method of online test is very common for selection in government jobs nowadays. Various government organisations like SBI, RBI, LIC, NABARD, are conducting test to select the candidates.

After the test, interview is conducted for those candidates who have qualified the test. The organisation can use technology in this step also by using the method of Video-Interviewing. In video-interviewing the interviewer can ask questions from the interviewee sitting at a far off place. This method feels just like face-to-face interview and has a very realistic touch. The interviewer is able to analyse the verbal response, communication skills, eye movements, non-verbal responses and other gestures of the candidate to make a decision about whether the candidate is right for the job.

E-LEARNING AND E-TRAINING: E-Learning and E-Training are often used interchangeably by a common man. But to an HR these words have a different meaning. Training is given to employees to perform some special duties or one can say duties for which they are specifically hired by the organisation. Training is given to employees to perform specific duties which are surely to arise in the near future. Learning makes the employees ready for an uncertain and unanticipated situation which may arise in the future and which is not specific to the job of the employees. It is related to the organisation in general i.e. rules, regulations, principles, culture, etc. A successful learning atmosphere will apply both e-learning and e-training principles to help employees grow.

E-training can be of two types

Synchronous Training- In this type, both learning and teaching takes place in real time even though the trainers and learners are physically separated from each other.

Asynchronous Training- In this type, the learning takes place with time delay as well as the trainer are learner are physically separated from each other.

MODES OF E-TRAINING AND E-LEARNING

1) **Webinars-** A webinar is a training session or workshop delivered over the web using video-conferencing software. It is similar to a traditional classroom training except the trainers and learners are physically separated and login virtually from different places.

2) **Web-based Learning-** This form of training is accessed via web browsers or the corporate intranet. The best part of this mode of online training is that learners can access it at their own pace within the set time. Also they don't need to travel to the training centre to attend the training. The compatibility of web browsers with videos, audios, animation and other media elements make it a user- friendly medium to deliver online training. On the other hand, the learner needs to have a certain set of system requirements (additional bandwidth and software).

3) **Video-Based Learning-** In this mode, training is imparted via videos that grab the attention of the learner who had enough of traditional training. Videos can include animations, documented case-studies, interviews and testimonials of experts, or screenshot recordings. These online training materials can be accessed anytime from anywhere, allowing learners to watch the video as many times as they want and learn at their own pace.

4) **Collaborative Learning-** Collaborative learning focuses on building collaborations and encouraging interaction among learners, their peers, instructors and other experts of the field. Online social networking plays an important role in Collaborative Learning as it connects a diverse and global workforce. Social learning platforms like discussion boards, chat rooms, messengers, etc. are present in most Learning Management Systems, encouraging employees to discuss and share ideas and opinions.

5) **Mobile Learning-** Mobile Learning provides information to learners that can be accessed remotely through their mobile devices. Many companies are now following the Bring Your Own Device (BYOD) policy and m-learning has proved to be a boon to such employees. This policy also enabled mobile learning to become an independent online learning format, while earlier it was used just as part of a regular e-learning program.

6) **Micro Learning-** This training methodology takes training to a micro level by chopping down information to small digestible bites. Unlike regular e-learning courses, micro learning deals with only one learning objective per course. This allows learners to focus on specific information and also eases knowledge.

Nowadays, there are many software that are available and which are used by most of the organisations

- Grove
- Whatfix
- eSSential
- ProClass
- LearningStone
- Composica
- Relias LMS
- SkillBuilder LMS
- SHIFT
- Mindflash

E-Recruitment, E-Selection and E-Training paves the way for Green HRM

Green human resource management involve an integration of organizational environmental management objectives to the HRM process of recruitment and selection, training, development,

performance management and reward for environment sustainability. **(Renwick et al. 2008, and Muller- Carmen et al. 2010). Callenbach et al. (1993)** had elaborated that in order to carry out green human resource management, employee must be inspired, empowered and environmentally aware of greening to be successful**.** E-HRM and Green HRM compliments each other. They both are related to each other in the sense that adoption of E-HRM practices and techniques will lead to sustainable development and Green HRM. Many companies and organisation have adopted the policy of Green HRM practices which make use of E-HRM. In the context of recruitment, selection and training, E-HRM practices will help the organisation to reduce the use of pen and paper thus leading to protection of environment like online tests and video interviewing and various methods of online training. If the candidates can take the test at their place the fuel which would have been used is also conserved. These small steps can pave the way for Green HRM.

CONCLUSION

In conclusion we can say that E-HRM is the present and future of HRM. It is impossible to imagine the future of HRM without the use of technology. Almost all the organisations and companies use E-HRM in their day to day operations. E-HRM has definitely reduce the workload of HR and it can focus more on framing strategies and more important work. It will also reduce the cost of HR and bring about more efficiency and effectiveness.

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