INDUSTRY 4.0: IMPACT OF ARTIFICIAL INTELLIGENCE AND BLOCKCHAIN TECHNOLOGY ON SERVICES TRANSFORMATION IN BANKING AND FINANCIAL SECTORS

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Abstract:
Safe and Secure money transaction is the primary key of satisfaction to the customer in today's rising of cyber crime over the last 5 years as well as high expectation of customers towards fast services serving in financial sectors is also accountable in enhancing customer experience. Gradually, Digital transformation is changing the structure of banking services worldwide. Driven by the digital technology evolution, controlling of process optimizing and customer is no longer option, it is necessity of banking sectors providing safe ,secure and fast services to the customers. Industry 4.0 is the new development of changing the phases of banking through larger shift in banking services to provide secure and safe environment to meet the customer satisfaction level and helps in saving time both for the customer as well as for the bank. Today's emerging technologies Artificial intelligence, and Block Chain technology as Industry 4.0, will not merely speed up transactions and reduce their cost through automation. They will also drive a significant restructuring of the entire financial sectors and will play particularly influential roles in transformation of services. This paper highlights on how Artificial Intelligence (AI) and Blockchain technology can be a game-changer for business generally and professional services in particular and shows the perspective of employees and customers towards implementation of artificial intelligence and Blockchain technology in banking and financial sectors and this paper also focuses on impact of Artificial intelligence and Blockchain technology to enhance the business structure in banking and financial sectors.

Keywords: *Industry 4.0, Services, Transformation, Artificial Intelligence, Blockchain, Technology*

Introduction

Artificial Intelligence: way forward for India (Srivastava, S. K, 2018) has shown that a artificial Intelligence (AI) is concerned with understanding the nature of human intelligence and designing intelligent artefacts which can perform the tasks which, when performed by humans, are said to require intelligence. Any major advancement in technology brings with it a range of opportunities and challenges. While AI is likely to bring substantial economic growth, it is being predicted that a number of jobs would be lost due to the automation. Therefore, it is necessary to put required policy and infrastructure in place.'

Demirbas, U., Gewald, H., & Moos, B (2018) found that Digital transformation (DT) is a popular contemporary buzzword in the financial services industry. In order to remain competitive, banks constantly evaluate and adapt their digital strategies. One approach involves leveraging innovative digital technologies such as artificial intelligence, cloud technologies and Blockchain.'

Ibarra, D., Ganzarain, J., & Igartua, J. I (2018) suggest that this phenomenon considered the Fourth Industrial Revolution, will be the most powerful driver of innovation over the next few decades triggering the next wave of innovation. Thus, the main features related to the Industry 4.0 such as real-time capability, interoperability and the horizontal and vertical integration of production systems through ICT systems, are regarded to be the response to current challenges

that companies must face to stay competitive in terms of globalization and intensification of competitiveness, the volatility of market demands, shortened innovation and product life-cycles and the increasing complexity around products and processes.'

The Impact of Industry 4.0 on the Transformation of the Banking Sector (Mekinjić, B, 2019) has highlighted that Industry 4.0 or Digital Revolution is changing the way of living, changing interactions with clients and companies, which inevitably implies that both existing business methods and financial services are not exempt from this change. In the banking world, accelerated digitalization has made banks intensively re-examine traditional business models, which means that they have to respond quickly and efficiently to the demands of their clients while offering safe and simple services for use. Security and trust are still key determinants, and banks have developed innovative banking services and products over the past few years, including secured systems that reliably protect data and money of clients.'

Guo, Y., & Liang, C (2016) found that Blockchain technology is a core, underlying technology with promising application prospects in the banking industry. As such, Blockchain could revolutionize the underlying technology of the payment clearing and credit information systems in banks, thus upgrading and transforming them. Blockchain applications also promote the formation of "multi-center, weakly intermediated" scenarios, which will enhance the efficiency of the banking industry.'

Jakšič, M., & Marinč, M (2019) suggests that Banks have no time for complacency. They need to reevaluate their competitive advantages in light of profound changes driven by advances in information technology (IT) and competitive pressure from FinTech companies. Societies are on the verge of deep transformation due to IT developments in social networks, communications, artificial intelligence, and big data analytics. Understanding banking in these fluctuating times is a challenge.'

Ukpong, E. G., Udoh, I. I., & Essien, I. T (2019) found that Artificial Intelligence (AI) could be a game-changer for business generally and professional services in particular. With the rapid developments in machine learning, data mining and cognitive computing, the next decade promises to see huge leaps forward.'

Manda, V. K., & Polisetty, A (2018) has focused that Bitcoin and block chain are closely related. When Bitcoin was released in 2009, it wrapped the blockchain technology and became the first implementation of the technology. Satoshi Nakamoto, the developer of bitcoin, used the words 'block' and 'chain' separately in his original paper. However, it is only from the past couple of years that the words are combined and used as a single word - 'Blockchain' - and perceived as a major technology.

Digitalization in Banking Sector (Harchekar, J. S, 2018) has shown that conversion of data into a digital format with the adoption of technology is called as digitization. By implementation of digitalization, banks can provide enriched customer services. This provides convenience to customers and helps in saving time. Digitalization decreases human error and thus builds customer reliability. A new wave of technology is revolutionizing the way customers engage with their finances.'

Gandhi, H., More, R., & Patil, N. (2019) has focused that the Blockchain is the world's leading software package for digital assets. Now banking and financial sectors are using new technology Blockchain to build a better financial system. The term "Blockchain Technology" typically refers to the clear, trusted, the in public accessible ledger that allows us to securely transfer the possession of unit's important exploitation public key encryption and proof of work methods. The technology uses suburbanized agreement to keep up the network, which means it is not centrally controlled by a bank, corporation or government.'

Cortina Lorente, J. J., & Schmukler, S. L (2018) found that The retrenchment and intensified regulation of the traditional banking system after the global financial crisis, combined with greater access to information technology and wider use of mobile devices, have allowed a new generation of firms to deliver financial services. The term "fintech" refers to this new financial industry that relies on innovative technologies and business models to provide financial services outside the

traditional financial sector. Lending, payments, and cross border transfers are some of the segments most highly affected by this development.'

Vives, X. (2019) has highlighted that the industry is facing a radical transformation and restructuring, as well as a move towards a customer-centric platform-based model. Competition will increase as new players enter the industry but the long run impact is more open. Regulation will influence decisively to what extent BigTech will enter the industry and who will be the dominant players. The challenge for regulators will be to keep a level playing field striking the right balance between fostering innovation and preserving financial stability. Consumer protection concerns raise to the forefront.'

Goel, R., & Garg, S (2018) found that the rapid development of mobile communication and wireless technologies has made banking services available through mobile phones. Firms in the banking sector have embraced diverse information and communication technologies (ICT) in order to succeed in a competitive environment, reduce costs, and increase customers' convenience. To meet their customers' expectations, banks offer a wide range of services to their customers through the Internet and using mobile technologies. Banks are exploring ways to convert to a more digital business model.'

Ahmed, I., & Shilpi, M. A (2018) suggests that being an ineradicable data storing technology, Blockchain can be used not only in financial assets but anything which has some value. However, being a human invention, downsides are even here in the Blockchain technology such as scalability issues, security problems, and not-so-user-friendly for non-technical people.'

Thakar, S. H (2019). Found that in modern infrastructure environment, the cloud computing is one of the exciting developments although the use of the cloud in the corporate environment has already changed the concept of data storage and resource management, its use in the field of information centres and libraries is somewhat less extensive. Over the year technology has been changed and internet companies like Google, Microsoft, Amazon, eBay, IBM etc. have acquired the tremendous amount of expertise in providing cloud computing services, large scale information and data storage services.'

Traditional banks have to rely on their intrinsic values, such as security, discretion and customer orientation in order to turn tables. The future of banking lies in the ability to digitally transform. Secure Payment System has been trusted and adopted as a digital transformation by more than 70 banks worldwide. Banking expertise will increase end customer satisfaction level while lifting pressure from costs, technical and compliance issues. Secure Payment System is nothing but complete End2End services from omichannel input through customer on boarding payments, credits and securities processing master data management to true omichannel output while perfectly integrated existing front and back office functions.

Problem Statement

In current digital era there is more chance of fraudulent transactions that is the main problem with bank's customers and due to involvement of more parties during transactions takes more time to process it.

Objectives

The objectives of this research are:

1. To impact of artificial intelligence and Blockchain technology in banking and financial sectors to enhance the business structure.

2. To portrait the perspective of employees and customers towards implementation of artificial intelligence and Blockchain technology in banking and financial sectors.

Research Methodologies

Both quantitative and qualitative data is used in this research study. For this research as a survey questionnaire is used for collecting primary data. Data Collection and analysis method is adopted wherein questionnaire is circulated and interview is conducted amongst various stakeholders like

branch head, operation head, branch sales manager , cashier, business development executive ,customer service officer ,customers and industry experts in Pune City.

Participants
The random sampling technique was used during the selection of participants and the experimental study was conducted in selected banking and financial sectors in Pune city and also interacted with bank's customers.

Sampling Elements
Customers: 20 randomly selected customers in the 25-50-year-old age group were included this study.
Employees: 40 employees of selected banks participated to the study. Out of 40 participants, 25 participants were male.
The average age of employee was 30 years old.

Table 1: Outline of Study

	Customers	Employees
Participants	20 Banks' Customers 25 - 50 years old 14 Male and 06 Female Average age is 28 years old	40 Bank's Employees 25 – 40 years old 25 Male and 15 Female Average age is 30
Occupation	Students, IT & Non IT Professionals, Teachers, Technical and Non Technical Professionals	Bank Managers and Officers, Development executive
Duration	3 Weeks	3 Weeks
Evaluation of the Study	Structured interview	Survey method (Questionnaire)

Data Analysis
Analysis of Employees and Customers Adaptability towards Industry4.0 (Artificial Intelligence and Blockchain Technology) in Banking and Financial Sectors
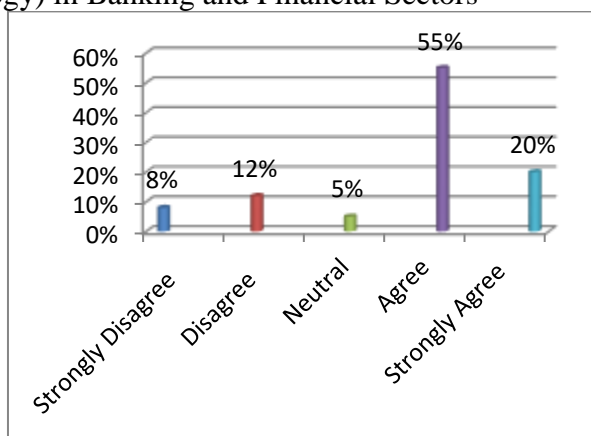

Figure 1: Limited implementation of Industry4.0 in India

Analysis 1: As can be seen in figure 1, many employees and customers are strongly agreed with fact that implementation of Artificial Intelligence and Blockchain technology is limited in Indian banks as compare to foreign banks.
Implementation of Artificial Intelligence and Blockchain technology provides the respective banks with a competitive advantage and helps in competing with foreign banks.
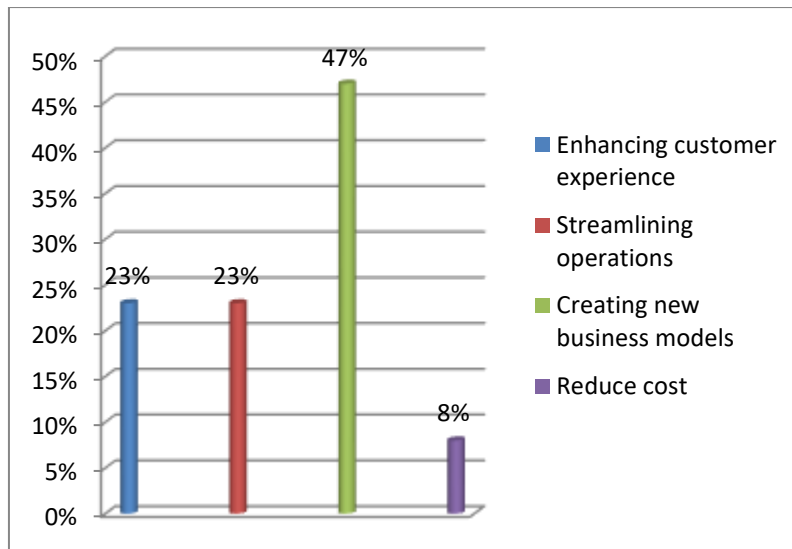
Figure 2: Effect of implementation of digital technologies in Banking and Financial Sectors

Analysis 2: Figure 2:As per the response shown in figure 2, it is cleared that the employees and customers are agreed with fact that implementation of emerging digital technologies such as social media, mobile, analytics and embedded devices in banking and financial sectors to enable creating new business models.
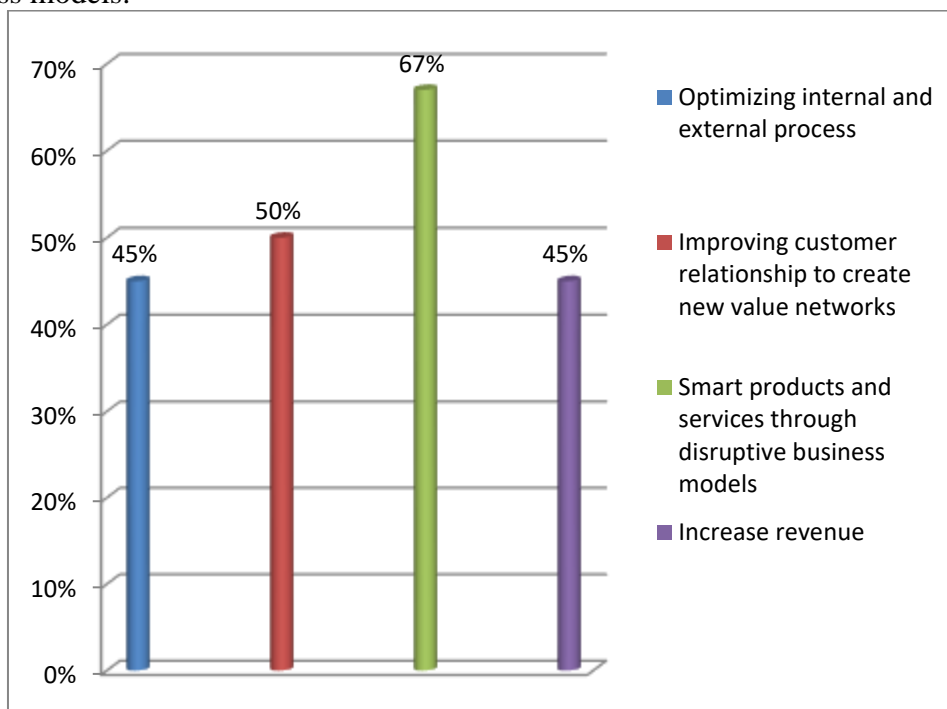

Figure 3: Effect of Industry4.0 as innovative digital technology on Banking and Financial Services and Business

Analysis 3: In figure 3, respondents agree that there has been an improvement in the quality of customer services and business after the entry of innovative artificial and Blockchain technology in banking sector.
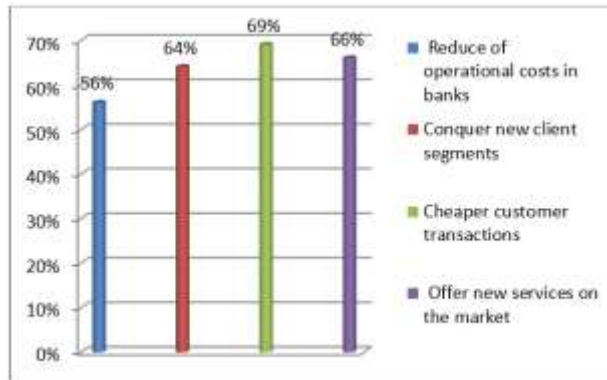
Figure 4: Transformation in business model through digital banking

Analysis 4: The respondents' perceptive about transformation in business model through digital banking adhere to the fact that adoption of artificial intelligence and Block chain technology has helped reduce manpower requirement along with saving costs as well as will open new services segments for the clients.
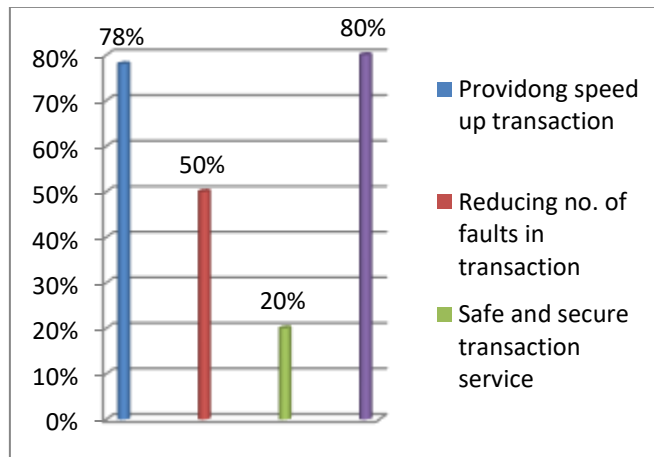

Figure 5: Benefits of Artificial intelligence and Block chain technology

Analysis 5: 80 percent respondents have opinion that due to implementation of industry4.0 in banking and financial sectors will facilitate to the customers to provide less time consuming services and speed up transaction but on the other side less percentage of respondents are agreed with the fact that somewhere security about transaction is less as compared to the traditional methods. These factors make it possible for the customers to place their trust in the respective banks.
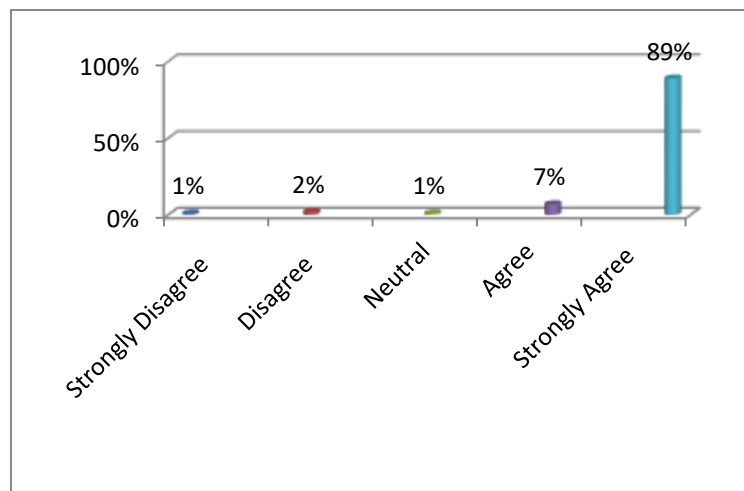

Figure 6: Improvement in work efficiency and profitability due to adoption of Artificial Intelligence and Block chain technology

Analysis 6: Reducing stress, increasing accuracy and efficiency and growing motivation are most important parameters that are to be improved to achieve work efficiency and profitability in any

sector as a result 89 percent of respondents are strongly agreed that adoption of artificial intelligence and Block chain technology that definitely will reach important aspects of work efficiency and profitability to a certain level of satisfaction.
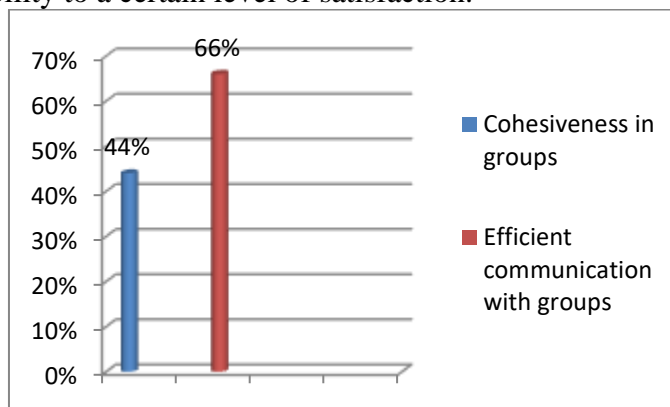

Figure 7: Effect on culture parameters due to implementation of Artificial Intelligence and Block chain Technology

Analysis 7: It can be seen in figure 7 that according to 66 percent respondents, implementation of innovative technology helps in effective communication with groups as well as will help in creating group cohesiveness.
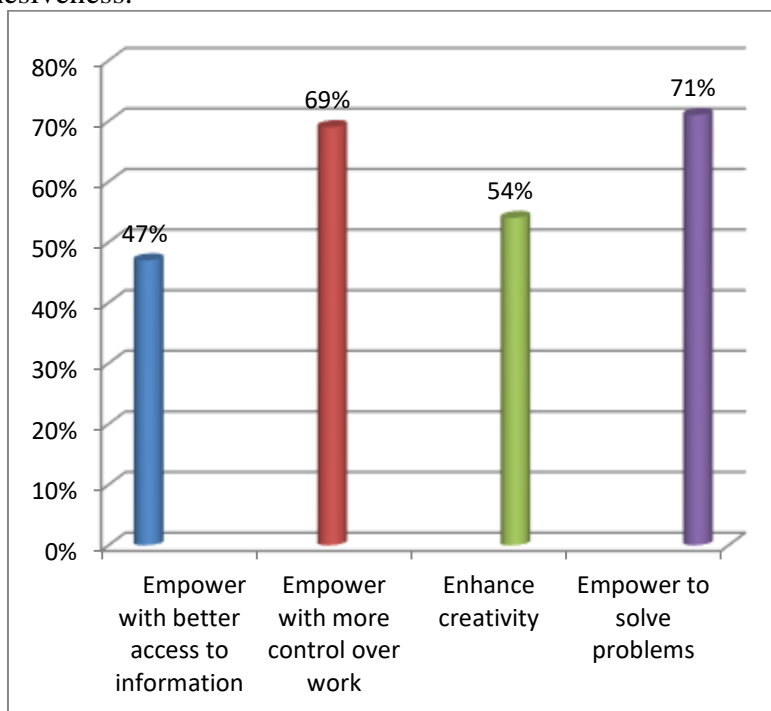

Figure 8: Effect of adoption of Industry 4.0 on management factors

Analysis 8: 47 percent majority of respondents' opinion is that adoption of technology has helped in attaining better access to information. 69 and 71 percent respondents are agreed that adoption of such type of innovative technologies has empowered them with more control over work and to solve the problems.

Expectation Parameters of Customers from Banking and Financial Sectors:
Significant restructuring of the entire financial sector through digital technologies will be the big revolution and also drive the banking and financial business to next level in terms of customers' satisfaction about services and change the balance of power between established company and newcomers, and change the way ordinary people manage and spend their money.
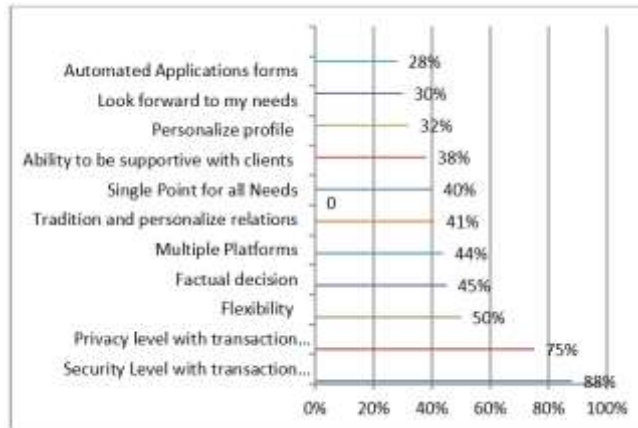
Figure 9: Customers' Expectation Parameters from Financial Sectors

As per the feedback of respondents from figure 9 it is cleared that security and privacy level with payment transaction are the major concerns of customers.

Conclusions

Services in banking and financial sectors are more inclined towards fraud and cyber crime attacks worldwide. Customer's satisfaction towards services, security concern is the first and foremost priority. Payment transaction is more exposed to different attacks and customer feel more insecure. Monitoring, examining large amount of data is the critical task and takes more time and requires more manpower but adoption of AI and Blockchain technology in banking and financial sectors provide reliable, rigid and robust platform where intelligent systems and networks are working together and executing the task to bring the all customers' services at satisfaction level.

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