



TRANSFORMING HUMAN RESOURCES IN THE FUTURE BY INTEGRATING ARTIFICIAL INTELLIGENCE AND DATA ANALYSIS

Vandna Talwar

Ph.D. Scholar

Department of Management

Malwanchal University Indore, (M.P.).

Dr. Naresh Kumar Goel

Supervisor

Department of Management

Malwanchal University Indore, (M.P.).

ABSTRACT:- Artificial intelligence is a true corporate innovation that will significantly influence how workers operate, particularly in the human resources and employment departments. Artificial intelligence (AI) technologies have such a significant influence on human resource management. For example, they create individual training and development programmes for each worker based on real-time big data or data analytics connected to employment practices. Artificial intelligence refers to software that performs tasks that need some amount of intellect. In other words, a tool has been taught to do jobs that a person can. Artificial intelligence can help improve the accomplishment of human resource management work assignments, whether in the fields of employment, interpretation and performance measurement, HR planning, staff training needs, job analysis, or even predicting the labour market as well as its requirements and indicators when used efficiently and realistically. According to research by the industry-leading supplier of cloud-based apps for industry-specific applications, with the fast change in technology, we are already starting to observe a case of innovative use of AI in methods that may offer more positive effects to the workflow. Workers in the human resources and recruiting divisions do their jobs. Several corporations and organisations have already shown how AI can help enhance the quality of treatment while also lowering expenses. In around 20 years, half of all employment will be obsolete or obsolete, and primary health care will be no exception. Understanding the advantages and drawbacks of various strategies is just as essential as developing the appropriate algorithms and data architecture.

KEYWORDS:- *Artificially Intelligence, Human Resource, Employees*

INTRODUCTION:- Artificial intelligence is redefining how businesses manage their employees and establish human resource strategies to boost productivity and elevate employee work standards in the modern-day. On the other side, employees' objectives must now meet openings and embrace young people, not simply

in terms of their talents. In today's millennial corporate environment, where work-life balance, work content, and ethics are all undergoing revolutions, the usage of modern science-backed technology is vital. Employees in the next generation are self-reliant and adaptable. Technology, such as smartphones or self-service apps, is the most effective means of communicating with them. Institutions must undertake digital transformation in AI to recruit the best staff, service their consumers, and thrive; institutions must undertake digital transformation in AI.

Furthermore, in keeping with the modern digital era, office technology must empower workers by allowing them to continue working at any moment and from any location. At a conference and session of the Global Forum Governance of Artificial Intelligence, with the inclusion of over 250 experts and professionals in numerous fields of AI applications, the poles of the global artificial intelligence community met experts and specialists government officials and policymakers. The specialists emphasized the significance of governments collaborating with various partners and segments to grow human resources feasible to sustaining the radical transformation that artificial intelligence will yield to the nature of jobs and career specialisations in the future, as well as introducing a comprehensive community and human dialogical on the most acceptable ways to invest in human capabilities of machine assimilation and leadership. Due to significant advances in HR technology, essential factors are developing, including privatisation, in which there is a genuine chance to shift away from how HR programmes were previously implemented. Where once one size fits all, AI technology allows us to create personalised environments for each worker, encouraging them to use entrepreneurship platforms and providing them with data in the same way that they do in their individual lives, which means the system recognises them and assists them in improving their job experience. Complete and continuous support for continuous learning will be critical for the continued prospects of human resources as automation and the use of technology change. It isn't just about assisting employees' human resources when it tends to come to allocating new jobs or employing them in new roles; it's also about making sure people are constantly thinking about how technology and business change impact their careers, as well as the skills they'll need to continue to succeed in the future. Workers must be supported in their attempts to gain new skills and enhance their capacities to deal with field changes.

2. REVIEW OF LITERTURE:-

(Velev & Zahariev, 2016) discussed that Artificial Intelligence (AI) is intelligence programmed by humans to perform human activities. This is the basis computer systems for creating AI systems, which ultimately function as a separate unit under the definition of thinking machines. These systems have three qualities: intensity, intelligence, and adaptability. People design AI-based systems with the intention that they will make decisions based on previous data or data submitted in real time or in a combination of both factors. These systems contain predefined answers, systematized in algorithmic actions and sequence. AI systems often

include machine learning, deep learning, and data analysis that allow intelligent decision making for this type of system. This intelligence is not human intelligence. This is the best approximation of the machine to the human intellect. The AI systems often include subcomponents of machine learning and deep learning to create advanced relational algorithms that would adequately handle the performance of certain human functions related to decision making, reactions, action dynamics, etc.

(Vinoth S, 2016) Banks and other financial institutions are using artificial intelligence cloud - based services, blockchain technology, deep learning, APIS and automation to cut costs, increase reliability and effectiveness while also improving the customer experience, according to the study's findings. The vast majority of big and worldwide banks are adopting artificial intelligence into their operations, both in the backroom and in the front line with customers. The proof-of-concept stage has already begun for some significant financial services businesses, which are incorporating some of the emerging technologies into their operations. These include cloud storage, blockchain technology, and deep learning. The applications of artificial intelligence in banking may be divided into three main components: The customer's perspective Employees are empowered by AI, and insights are fueled by AI. Artificial intelligence (AI) will get stronger and wiser in the future, allowing every client to enjoy a more secure banking experience. It is possible for artificial intelligence (AI) to enhance business processes, offer tailored services, and contribute to broader goals such as financial inclusion. Artificial intelligence (AI) has been applied in the banking business in areas including such banking facilities, organisational effectiveness, customer help, and analysis. The Indian banking sector uses chatbots and robotics extensively, and machine learning algorithms are also widely employed in areas such as KYC, financial transfer, and fraud detection, among other things. The importance of artificial intelligence in reaching greater levels in customer relation development via digitization is increasing as the progress scale progresses. Indian banks are supposed to increasingly use cutting-edge machine learning algorithms, block chain and data analysis to combat difficulties such as cyber attacks, traditional banking methodologies, an inadequate training, and other factors in order to deliver maximum tech-enabled financial services in the future.

(Joshi & Kulkarni, 2016) Researchers discovered machine intelligence (MI), is the intelligence demonstrated by machines, as opposed to the natural intelligence (NI) shown by people and animals, according to their findings. The notion of artificial intelligence is founded on the idea of creating robots that are capable of thinking, acting, and learning in the same way that people do. Artificial intelligence makes it possible and practicable for computers to learn from their experiences, adapt to new inputs, and perform tasks that are similar to those performed by humans. It is performed by investigating and researching the workings of the human brain, specifically how people learn, decide, and operate when attempting to comprehend an issue, and then utilizing the findings as a basis for constructing intelligent software applications (e.g., artificial

intelligence). In artificial intelligence, three unorthodox techniques — machine learning, natural language processing, and cognitive computing – are used in conjunction with one another. The concept for this is to duplicate human intelligence in computers while also removing the impediment to human intellect that now exists. The only constraint with people is their ability to move quickly. Artificial intelligence solves this constraint by transmitting human intellect to logical computers that possess outstanding computing capabilities, as opposed to human intelligence.”

(Garima Kaneria, 2016) The statement goes on to say that enormous advancement in computer hardware, programming, and web - based technologies have fundamentally altered our civilizations. With the advent of computers, the internet, and portable devices, it is impossible to picture an economic agent operating without these tools. The rapidity with which information technology is changing provides tremendous chances to grow clientele, launch new goods or enhance current ones, and improve overall efficiency in a very short amount of time. Companies who lose out on the present IT wave, but at the other hand, may find themselves overrun by events in the near future. Among the many IT advancements of recent times, the growth in artificial intelligence (AI) stands out as especially noteworthy. In a nutshell, artificial intelligence (AI) refers to machines that have cognitive abilities equal to those of humans, which has the potential to result in enormous efficiency improvements for both businesses and their customers. The financial industry was one of the first to explore with artificial intelligence technology, not least because it has the potential to contribute to increased profitability. As a result, it is critical to examine the possible role of artificial intelligence in the digitalization of financial institutions.

(Ashraf, 2017) According to the research, a fundamental assumption in financial economics is that the main goal of a financial management is to maximize the value of the company's stock and the wealth of its owners. However, the term corporate social responsibility refers to the phenomena that encompasses the ethical, ecological, and social responsibilities of businesses. Financial institutions, such as banks, play an important role in corporate social responsibility (CSR). The notion of corporate responsibility has grown at an exponential pace during the past several decades. CSR is not a new topic of discussion for corporate leaders throughout the globe. CSR , on the other hand, is significant since it has an impact on all elements of a bank's activities. CSR is a concept that has numerous definitions and practices that can be found online. As a result, the notion of corporate social responsibility is associated with a company model that sustainable and equitable by providing economic, societal, and ecological value for all stakeholders while also contributing to the growth of the firm itself. Corporate governance has been described in a variety of ways by various academicians and practitioners. European Commission defines sustainable business practices as a concept that demonstrates the contribution of diverse firms to a better society and an environmentally friendly

environment. CSR is defined as a commitment made by a business, and this commitment indicates that the business is committed to making a positive contribution to sustainable economic development by working with employees, their families, the local community, and the general public to improve the quality of their lives. Because the objective of a company is not simply to make a profit, but also to contribute to the social welfare of the community. Corporate social responsibility, in its most basic form, is intended to guarantee that businesses conduct their operations in an ethical manner. The fundamental goal of corporate social responsibility is to ensure the long-term viability of company operations in order to generate shared benefit for both business and society.

(Financial Stability Board, 2017) the fact that AI and deep learning are being quickly embraced for a spectrum of uses in the financial industry was researched. So it's imperative that we start thinking about the consequences of such applications for financial stability. Because benefits of technology in banking are still in their infancy and are fast growing, and because data on actual use is few, any study must be early, and advancements in this field should be actively observed. Artificial intelligence and machine learning have previously been used in a variety of situations, or use cases. All supply side factors have contributed to the popularity of these use cases, including technological developments and the provision of financial sector data and infrastructural facilities. Demand factors include profitability requirements, competitive pressure with other companies, and the requirements of financial regulation.

(Donepudi, 2017) A recent research discovered that machine learning (ML) and artificial intelligence (A.I.) applications in the banking industry have seen significant growth in recent years. They have been able to harness their great power in these institutions in order to provide enterprise solutions in both the forward end and backend web processes in order to increase efficiency and enhance customer service. In recent years, we have seen how computer vision may be the most effective facilitator for achieving a competitive advantage by exploiting its decision-making skills to gain a competitive advantage. With such impressive findings, we can see that machine learning and artificial intelligence are determined to take over the banking sector in our very own backyard. It will be discussed in this section how M.L and A.I are used in the banking sector and how these organizations are able to successfully employ computational intelligence to enhance their business operations. Without a question, machine learning and artificial intelligence have transformed the banking business. In a variety of ways, the financial experience has been significantly enhanced as a result of this transformation. Despite the fact that most financial firms are still battling with the adoption of computational intelligence capabilities, the use of these technologies is spreading across the sector like wildfires.

(*Charlier, 2017*) It has been discussed that this is essentially wonderful news for Hr Department and your company in general. Traditionally, human resources have lagged behind in the transition, but artificial intelligence now provides an opportunity to catch up. Despite this, many human resource professionals are hesitant to accept this game-changing technology. Some believe that algorithms will never be able to fully replace basic empathy and understanding. There are concerns regarding the supply and accessibility of data, as well as whether artificial intelligence can bring anything new to our understanding of the interaction of the workforce.

(*Scholz, 2017*) the analysis revealed that inside an organisation, and notably among companies, any application of big data can alter human interactions. Even massive data consumption in ostensibly nonadjacent domains will have an impact. The use of bigdatasets in research & innovation, for example, will contribute to the introduction of new goods, and new devices will impose various needs of competencies and understanding ontopersonnel. Big data are, consequently, inevitable to affect work inside firms. One place of interaction between big data and people to be examined is the human capital (HR) department. As a consequence of human resources management (hrm (Shrm), Hr management have a longstanding experience of gathering and utilising data. Using data for this study of employee involvement is also not a new cycle, but the immensity of accessible data will constitute a problem to HRM.

(*Jain, 2017*) emphasis on the reality that as technologies continues to grow at a fast speed and the globe has now become a global community, and everyone is linked with one other via online. Corporate are predicting that population of the world is likely to exceed billion by the year 2050 and hence they are increasing their regional markets via continuous knowledge. They are aiming to acquire the agility to change and innovate to get a competitive advantage over rivals. Every sort of industry whether this is service or production are working on executing the operations exponentially at a quicker pace by embracing newest technology breakthroughs like Ai Technology which can imitate, think, plan and operate in the same manner as the neural network.

(*Johnson & Gueutal, 2017*) noted that nowadays the front of HR is frequently a gateway, rather than just a person. Almost all organisations today give easy accessibility to HR services via technologies and web based apps, radically transforming the practice of human resources. These adjustments typically come of the need to minimise costs and increase or enhance services. Recent study reveals firms that effectively utilize sophisticated HRtechnology solutions outperformed those who will not. But since most firms already have computerized basic HR operations, the mere robotics of HR activities can no longer provide a competitive edge. Instead, firms must identify how to leverage technology to improve their HR procedures and promote their HR brand.

(Ates, 2017) Focused on the reality that information devices are linking billions of people and enabling the adoption of low-cost linked devices across all industries. Modern society has adapted to the digital world, and the present generation naturally demands services and goods to adhere to the most recent digital technological standards. Furthermore, investments in digital technology and enterprises have increased, and the marketplaces have rewarded these investments. Artificial intelligence (AI) techniques are a component of this growth, and the banking industry is expected to witness a significant influence as a result of this growth. As per a survey published by Accenture, a worldwide management consulting and consulting firms business, four out of every five bankers believe that artificial intelligence would fundamentally alter the way banking is conducted in the future. According to the paper, artificial intelligence will have an impact on banking through improving the whole customer experiences. Personalized banking goods and services may become more popular, providing clients the sense that their financial institutions are aware of their individual preferences and requirements. The implementation of artificial intelligence technology, on the other hand, is fraught with possible difficulties and threats. Banks are tasked with handling very sensitive information. As a result, concerns about privacy and data protection are critical components of the procedure. Additionally, clients may prefer to speak with a live person when dealing with specific difficulties, which may lead to a rejection of AI-based interactions on their part. As a result, the incorporation of such innovations into the interactive way should be done in a manner that takes into account the dangers that may be involved.

(Primer, 2018) stated that Artificial Intelligence, Blockchain, and Internet of Things are emerging technologies that are impacting various aspects of human life. These technologies have the potential to disrupt the way we interact with each other, operate our businesses, and even how governments work for their citizens. Amongst these, AI is probably the most ubiquitous and disruptive in nature. The use of AI by organizations and governments, and its deployment in improving customer experience, operational efficiency, fraud detection and cyber security is on the rise across the world. Although the adoption of AI varies significantly across geographies, there are pockets of industries even within the developed countries that are increasingly adopting AI to better service their customers and bring in efficiencies of scale. One such industry that has embraced AI across geographies is banking. Banks and financial institutions stand to benefit significantly from AI. Whether to improve overall customer experience, take more informed decisions on credit underwriting, detect frauds and defaults early, improve collections or increase employee efficiency, AI has the potential to transform India's banks. As AI makes inroads into several hitherto untraversed domains, its definition gets blurred. An important objective of this report is to demystify the concept of AI and explain its close relationship with data science. Further, this report explains the applicability of AI to banks in India and recommends steps that could be taken to make them ready to embrace the changes that AI can bring.

(Jewandah, 2018)”As a result, it was determined that a technological boom is undoubtedly taking place throughout all areas of business, particularly banking, particularly after devaluation. Banking system has changed, and more and more financial institutions are integrating new technologies such as artificial intelligence, cloud computing, and block chain in order to reduce their operating expenditures and boost efficiency. Despite the fact that it is still in its infancy, banks are on the verge of experiencing an artificially intelligent revolution. Growth and progress in the artificial intelligence business will result in increased production at a lower cost. Managers in all businesses would have to step up their game when it comes to skill-set up-gradation. There is little question that the current drive towards digitization is having a dramatic impact on the regular banking models in the United States. Nevertheless, it has also subjected the organizations to an increase in cyber safety threats and hazards as a result of this development. Technological innovations such as block chain technology and informatics are increasingly being considered by banks as part of their efforts to develop an active defence mechanisms against cybercriminals.

*(Guenole & Feinzig, 2018)*It has been discovered that the term strategic HR is now often used to refer to human resource approaches that provide firms a competitive edge. Strategic human resource methods like as collaboration and performance management, which place more emphasis on crucial occupations rather than every job and on groups of vital employees rather than every employee, have emerged as a result of the strategic human resource movement. One of the most significant benefits of technology has been its ability to increase efficiency; it has enabled us to perform the same things we have always done, but more quickly and more efficiently. When it comes to recruiting, for example, previously technology allowed us to recruit people more quickly over the internet, but now AI allows us to recruit the right people more quickly by assessing skill match for roles, predicting future success, and estimating the expected time to fill any given position. In this case, artificial intelligence is altering the scenario in such a manner that technology helps the human resources department to address significant business difficulties, expanding on past contributions from workforce analytics, as seen above. The use of artificial intelligence in human resources has the potential to provide exponential performance increases when past HR efforts have only produced incremental progress.

*(Park, 2018)*emphasis on the fact that modern technology enables the development of new business models and strategies. For instance, several top companies in the information technology business have already adopted the planform approach, and other companies are keen to discover a platform through which they may get such valuable personal data on their clients. They are not only pleased with having the knowledge, but they are also concerned in gaining their attention in order to grasp their interests and likes, which they do not

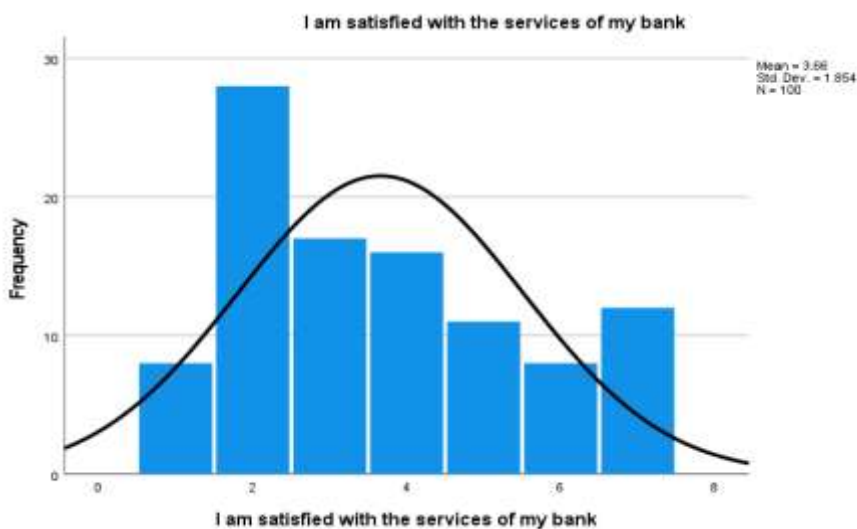
know themselves. Firms make every effort to tailor their services or goods to the needs of their customers and to make them available on a real-time basis. They achieve this by deciding on data using an artificial intelligence system. All of these changes in company model and strategy need a significant shift in human resource management to keep up with the times. In the same way that they treat clients, companies must take care of their workers on an individual basis and in real time as well. In order to be successful with their new approach, they must cultivate a more innovative and nimble human resource pool. It is necessary, on either hand, to use human resources in a more precise and effective manner. That is why human resource analytics and high-tech solutions based on automated processes have become so vital to them.

DATA ANALYSIS:-

TABLE-1

I am satisfied with the services of my bank					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	8	8.0	8.0	8.0
	Almost Never	28	28.0	28.0	36.0
	Seldom	17	17.0	17.0	53.0
	Sometimes	16	16.0	16.0	69.0
	Usually	11	11.0	11.0	80.0
	Almost always	8	8.0	8.0	88.0
	Always	12	12.0	12.0	100.0
	Total	100	100.0	100.0	

GRAPH-1

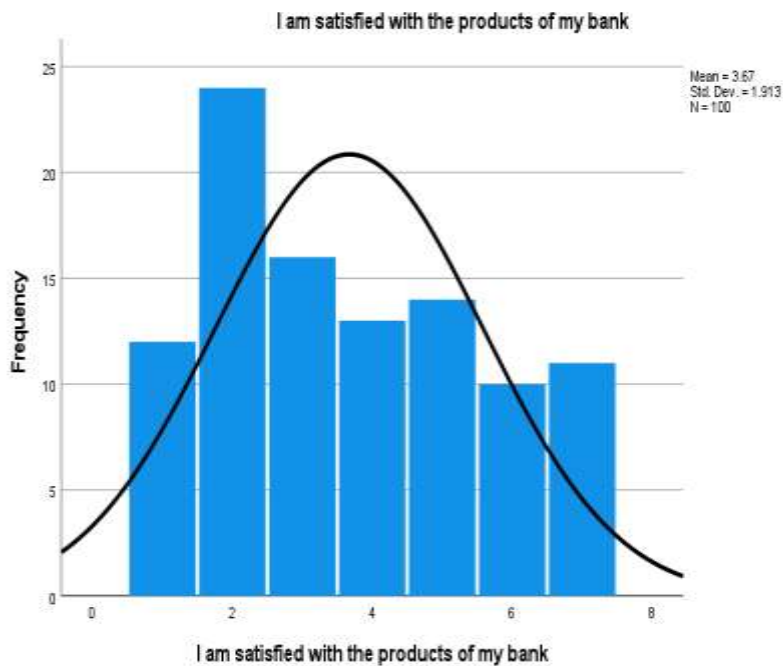


Above table includes the view of respondents about customer satisfaction towards their bank, if they are satisfied with the services of bank. As per 8% respondents said never while 28% respondents said almost never. 17% respondents said seldom while 16% respondents answer sometimes. 11% respondents answer

usually while 8% respondents said almost always and 12% respondents said always, satisfied with the services of bank.

TABLE-2

I am satisfied with the products of my bank					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	12	12.0	12.0	12.0
	Almost Never	24	24.0	24.0	36.0
	Seldom	16	16.0	16.0	52.0
	Sometimes	13	13.0	13.0	65.0
	Usually	14	14.0	14.0	79.0
	Almost always	10	10.0	10.0	89.0
	Always	11	11.0	11.0	100.0
	Total	100	100.0	100.0	

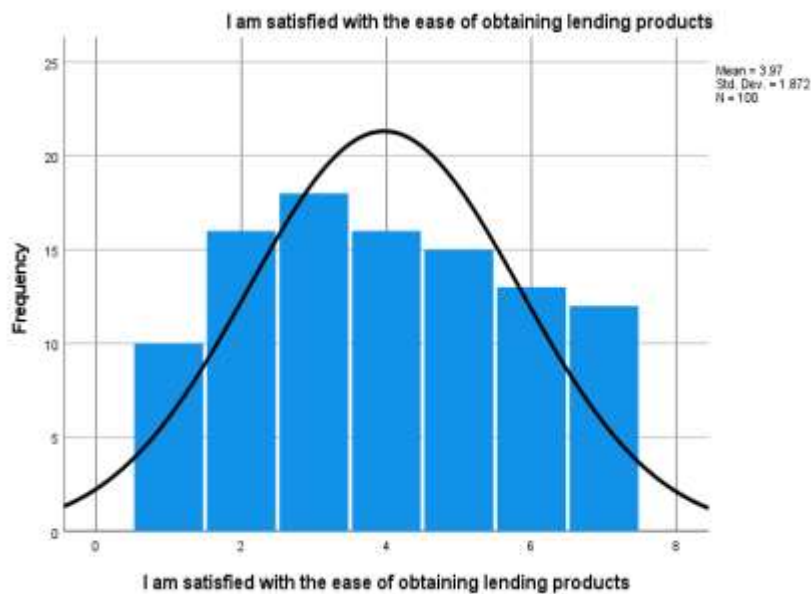
GRAPH-2

Above table includes the view of respondents about customer satisfaction towards their bank, if they are satisfied with the products of their bank. As per 12% respondents said never while 24% respondents said almost never. 16% respondents said seldom while 13% respondents answer sometimes. 14% respondents answer usually while 10% respondents said almost always and 11% respondents said always, satisfied with the products of their bank.

TABLE-3

I am satisfied with the ease of obtaining lending products					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	10	10.0	10.0	10.0
	Almost Never	16	16.0	16.0	26.0
	Seldom	18	18.0	18.0	44.0
	Sometimes	16	16.0	16.0	60.0
	Usually	15	15.0	15.0	75.0
	Almost always	13	13.0	13.0	88.0
	Always	12	12.0	12.0	100.0
	Total	100	100.0	100.0	

GRAPH-3

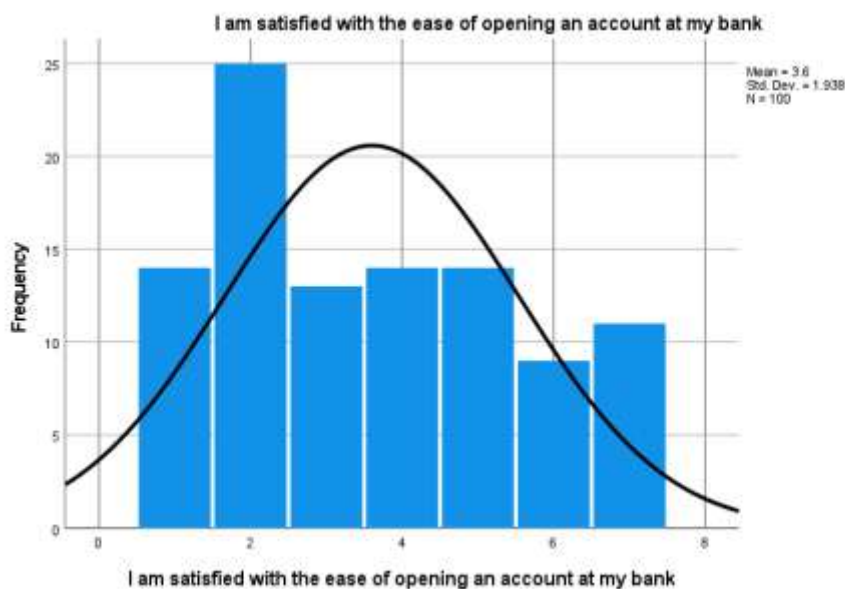


Above table includes the view of respondents about customer satisfaction towards their bank, if they are satisfied with the ease of obtaining lending products. As per 10% respondents said never while 16% respondents said almost never. 18% respondents said seldom while 16% respondents answer sometimes. 15% respondents answer usually while 13% respondents said almost always and 12% respondents said always, satisfied with the ease of obtaining lending products.

TABLE-4

I am satisfied with the ease of opening an account at my bank					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	14	14.0	14.0	14.0
	Almost Never	25	25.0	25.0	39.0
	Seldom	13	13.0	13.0	52.0
	Sometimes	14	14.0	14.0	66.0
	Usually	14	14.0	14.0	80.0
	Almost always	9	9.0	9.0	89.0
	Always	11	11.0	11.0	100.0
	Total	100	100.0	100.0	

GRAPH-4



Above table includes the view of respondents about customer satisfaction towards their bank, if they are satisfied with the ease of opening an account at their bank. As per 14% respondents said never while 25% respondents said almost never. 13% respondents said seldom while 14% respondents answer sometimes. 14% respondents answer usually while 9% respondents said almost always and 11% respondents said always, satisfied with the ease of opening an account at their bank.

CONCLUSION:- Leading financial institutions are increasingly embracing sophisticated AI technologies. According to "McKinsey's Global AI Survey"⁵, almost 60% of wealth management respondents claimed their companies have at least one AI capability integrated. The most commonly used "AI techniques" are "robotic processes automations" (36 percent) for structured operational processes, chat bots as well as conversational interfaces (32 percent) for customer support depts, and "machine learning" techniques (25 percent) for detecting fraud and assisting with reinsurance and risk management. Unlike many financial advice firms, which utilise AI on an as-needed basis and for specific use cases, a rising amount of banking ceos are adopting a comprehensive approach to advanced AI deployment, incorporating it across the entire lifecycle, "from front to back-end" procedures (Exhibit 2). Banks are increasingly turning to artificial intelligence (AI) to enhance experiences to customers and back-office procedures.

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Standard finance services are being disintermediated by digital networks. Customers now search, evaluate, and purchase goods and services via digital ecosystems, which provide access to a diverse variety of services through a single login. "Users in China", for example, might have been using the same apps to book a cab, purchase food, get a massages, play videogames, send money to a buddy, and apply for a personal credit line. Nonbanking companies and "super apps" are mixing "financial products and services" into their global trips, providing engaging user experiences, and disrupting traditional banking methods. As a result, banks will need to rethink how they interact with digital ecosystems, depending on AI to properly use relevant data from a variety of sources.

Financial services is the next logical extension of technology titans' fundamental business strategies. Major technology companies have built exceptional economic advantages around the world, along with a large and engrossed customer base, huge amounts of data that enable a more robust and concise knowledge of individual clients, natural abilities in creating and scaling technological innovations (including AI), and reduced capital. In the previous era, digital behemoths have proactively entered neighbouring companies in pursuit of new income sources and to keep consumers interested with a constantly changing menu of options. Big-tech businesses have already established a footprint in financially services in a few areas (most notably payments and, in certain circumstances, loans and insurance), or they might soon attempt to use their benefits to expand their reach and scale.

To meet consumers' rising expectations and combat potential competition in the "AI-powered" virtual environment, the AI-1st bank offers intelligence (i.e., recommending actions, forecasting and streamlining important decisions or actions), individualised (i.e., adequate and up-to-date, and based on a thorough understanding of customers' previous actions and background), and truly omni-channel (i.e., smoothly encompassing traditional and virtual situations all over multiple devices). Exhibit 3 demonstrates a bank's day-to-day interactions with a retail customer. Exhibit 4 demonstrates the financial services provided by a small-business owner or treasurer for a medium-sized company.

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Fundamentally, the AI-1st banking would be geared for quality management by automating manual tasks (a "zero-ops" mindset) and using strong diagnostic algorithms to replace or augment human decisions in so many field of banking. Classical and slashing AI approaches, such as machine learning and facial recognition, will be utilised to assess huge and complicated sources of customer data in (almost) real time, leading to increased operational efficiency.

The AI-first bank of the future will be as quick and athletic as today's digital-native firms. It will innovate quickly, providing sophisticated features in days or weeks instead of months. It will collaborate closely with team to build innovative methods to deliver value across experiences, applications, and benchmark databases.

At first appearance, incumbent banks must balance 2 sets of goals that seem to be at conflict. On the one side, banking must replicate fintech's agility, flexibility, and speed. On the another side, they must continue to handle a conventional financial assistance firm's scale, security measures, and regulatory duties.

Though spending billions of dollars annually on change-the-bank automation efforts, several banks have been successful in disseminating and expanding AI throughout their organisations. One of the most significant roadblocks to banks' initiatives is the absence of a defined AI strategy. 6 Several banks also face two additional difficulties: a shaky core technologies and data infrastructure, and an outdated operational processes and personnel strategy.

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