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Factors Affecting Customer's Viewpoint of AI Enabled Services in India's Banking Sector

Deep Shah, Tejas Dave
Email - Shahdeep258@gmail. Com

Abstract

The banking industry has undergone a significant transformation as a consequence of the increasing emphasis that has been placed on meeting the expectations of clients. Customers who have a solid grasp of technology and who routinely interact with cutting-edge developments assume that banks will provide experiences that are straightforward and easy. In order to facilitate activities such as the use of "digital currency, electronic banking, and the transfer of physical cash", financial institutions have extended their scope of operations to include the retail, information technology & telecommunications industries. Users have profited from the ease of being able to access banking services around the clock as a consequence of these developments; nonetheless, the financial system has also been badly impacted as a result of these innovations. In addition to this, the research explores the positive & negative factors that are related with the use of artificial intelligence technology in the banking sector of India. The purpose of this research is to provide a descriptive analysis of the implementation of "Artificial Intelligence (AI)" in the financial services sector and the influence that it has on interactions with clients. A total of 197 customers from public & private banks in Gujarat participated in the research project by filling out a questionnaire and providing their data. This was done in order to understand their perspectives & experiences.

Keywords: Customer, Banking Services, Development, Artificial Intelligence (AI), Satisfaction.

INTRODUCTION

Due to the high competition that exists in the banking industry as a direct result of globalisation, the financial sector is subject to instability and inequality [1]. There are a number of processes that are engaged in the banking industry, beginning with the initial screening of applications and continuing all the way through the execution of secure financial operations for customers and their continual utilisation of the services provided by the institution. Customers have a growing expectation that the businesses and services they contact with will provide them with improved service or an enhanced customer experience. As a result of the advancements in technology that have occurred over the course of the last few decades, businesses have begun to implement "cutting-edge technologies", such as "artificial intelligence", in order to give their customers with enhanced services. [4]: Investigates the ways in which banks in India are utilising "artificial intelligence", as well as the businesses that are providing funding for these applications. As part of their continued attempts to modernise their operations, financial institutions are swiftly adopting cutting-edge technologies such as "blockchain, cloud computing, and artificial intelligence".

Within the banking business, "artificial intelligence" refers to software systems that contain the ability to learn information from data and autonomously make decisions without the need for human input. It was mentioned in an article that was written by the creator of Fuse Technologies and published on the Forbes website [2] that artificial intelligence is proving to be beneficial for financial institutions. It is predicted in the research that artificial intelligence would have gained more than one trillion dollars in the financial industry by the year 2030. The report also states that AI is helping to facilitate the expansion of financial organisations. The research states that commercial banks have started using "Artificial Intelligence (AI)" in order to address a number of difficulties that have been plaguing the financial sector for longer than expected. The virtual assistant Erica, which was developed by Bank of America, is a good example of this category. Customers can receive investing advice from this automated technology in the form of both spoken and textual communication. It is possible for customers to make use of this resource around

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the clock, and it is able to handle transactions that are considered to be regular. Because of this technology, financial institutions are able to keep up with the most recent developments in the information technology industry [5].

It has been suggested by the authors of [6] that financial institutions should implement cognitive technology in order to provide managers with assistance in making decisions that are better informed. Previous studies have demonstrated that communicative artificial intelligence systems are widely acknowledged in the banking sector due to their capability to rapidly communicate with customers on social media platforms and mobile apps [7]. The application of "artificial intelligence" to customer service interactions in banking has shown promising results. On the other hand, research has shown that these systems continue to have difficulties in terms of security and reliability, mostly due to the fact that the technology is susceptible to breaches [8]. On the other hand, these studies differentiate themselves from many that came before them by highlighting the importance of utilising automation that is powered by "artificial intelligence" as a critical instrument for improving customer service and providing rapid access to information that can be relied upon for bank clients [9]. In the future, it is anticipated that the user-friendliness of automation will have a considerable impact on the level of confidence that customers have in "Artificial Intelligence (AI)" systems for customer interactions. This is because automation plays a big part in the process of developing trust with service providers [10].

LITERATURE REVIEW

In the past several decades, the banking sector in India has been aggressively incorporating technology that is powered by artificial intelligence into its day-to-day operations. During the 1950s, when "Artificial Intelligence (AI)" was becoming increasingly popular, Alan Turing became a pioneer in the field of study by conducting groundbreaking investigations into the potential of automated procedures. Although the phrase "artificial intelligence" was coined not too long ago [11], the beginning of the emergence of applications of "artificial intelligence" can be traced back to the late 1990s. There has been a significant acceleration in the development of "artificial intelligence technology"|, despite the fact that big internet companies such as "Amazon, IBM, Apple, and Twitter began utilising AI and analytical tools" for business reasons in the year 2011. Implementations of "artificial intelligence" cover a broad variety of applications, such as "algorithm monitoring, facial recognition, and optical character recognition". "Artificial intelligence" is now being employed in a variety of "operational domains", including but not limited to "advertising and targeting, accounting, insurance, the internet, transportation, aerospace, genetics, and agriculture" [12]. For the purpose of enhancing customer service, the banking sector in India has made substantial investments in "chatbots & Artificial Intelligence (AI)". According to the "PwC Fin-Tech Trends Report, it is anticipated that the amount of money invested in "artificial intelligence" and the technologies that are linked with it would rise to 8.5 billion USD in 2025, which is an increase from the 4.1 billion USD that was invested in 2015". "BFSI (2019) reports that Indian commercial and retail banks are not as evolved as their more advanced counterparts when it comes to the utilisation of artificial intelligence and associated technologies for the management of customer and back-office activities". As of late, a number of banks and other financial institutions have been working together with companies that specialise in "financial technology to build proof of concepts (POCs)" that may be included into their normal operations. As a consequence of this, a number of executives working in the financial technology sector in India regarded "artificial intelligence" as a potentially profitable new business prospect [13]. Surprisingly, just 36 percent of the world's most prominent financial institutions have made substantial investments in this kind of technology, despite the fact that more than 70 percent of industries have stated their desire to invest in the future [14]. Individuals who are interested in disrupting a particular industry may discover three areas of interest: customer support powered by artificial intelligence, immediate identification of fraudulent activity, and strategic decision-making [15].

CUSTOMER SERVICE PLATFORM

Users of an approved support platform have the ability to automatically obtain a variety of data types that are stored in a database [16]. The research that was carried out by [17] highlighted the importance of business organisations utilising a variety of technologies in order to interact with their customers. The establishment of an immediate rapport with customers is their primary plan of action. The approach ensures that users are authenticated and confirms their identities. The trustworthiness of a customer must first be established before responding to any questions or concerns they may have. In order to reduce the likelihood of fraudulent users obstructing real users, the customer support

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system requires clients to undergo verified verification. It is because of this that concerns have been raised about the safety of the system [18]. Through the use of online banking, financial institutions are able to create and maintain secure connections with customers, which ultimately results in a reduction in both operational and fixed expenses (mostly as a consequence of accelerated user input; see [19]). By utilising "web-based computer systems", users have the opportunity to gain useful insights from their mistakes and overcome issues related to "accessibility, blockages, participation, and identification" that are often associated with traditional channels. Banks are also able to reap the benefits of "blockchain technology" since it enables transactions to be completed more quickly, reduces the costs of transactions, reduces the number of procedural mistakes, and provides a timely response [20]. Customers are able to make use of the services that are offered by bankers in a plain and convenient manner, which is all part of the consumer support system. The concept of mobility must be both interactive and contractible in order for it to be successful. [21] Research has shown that when services are easier to get, customers report higher levels of satisfaction with such services. In the realm of customer care, client relationship management is an instrument that is absolutely necessary for financial institutions [22]. There is a growing desire for banking apps that are supported by artificial intelligence [23], which presents an opportunity for financial institutions to expand their client base. In order for a company to keep its consumers, it is necessary for the company to improve the quality of the services it provides and to include extra benefits that are sought, as stated in [24].

SECURITY & PRIVACY

As a result of the use of "artificial intelligence technologies", the banking industry is seeing beneficial consequences. Through the use of "artificial intelligence", fraudulent activities are being identified and prevented, the authenticity of transactions is being evaluated, and individualised services are being provided [25]. On the other hand, financial institutions are extremely concerned about the dangers and weakness of the internet. There is a presence of the number 26. In order to achieve a competitive advantage in the market, just ten percent of companies use "Artificial Intelligence (AI)". This is mostly owing to the multiple challenges that are involved in integrating AI. Despite the fact that artificial intelligence is being utilised increasingly often in the banking industry, the development of this technology is still in its infant stages [27]. Concerns have been raised by the banking industry regarding infrastructure, the increasing complexity of technical systems, employee turnover, and other concerns. Despite the inherent dangers, the banking sector has implemented cutting-edge strategies like as deep learning and automation [28] in order to improve the level of pleasure experienced by customers. Regarding persons who use online banking, the protection of their privacy and security is of the highest significance, as stated in reference [29]. The possibility for identity theft is one of the threats that lead to concerns over the security of online banking [30]. These concerns stem from both actual and imagined dangers. When it comes to accepting electronic banking, trust is the most critical thing to consider.

INFORMATION MANAGEMENT SYSTEM FOR DATABASES

Effective consumer relationships, adherence to rules, high-quality management, and legal hurdles, data management has emerged as the most important necessity in the industry due to advertising. There is a clear correlation between the precision of the data [31] and the quality of the deliberation process. Throughout the process of data collection, transfer, and storage, financial institutions and banks have moved away from antiquated techniques of storing, analysing, archiving, and deleting data on a local level. There have been considerable changes made [32] as a result of the implementation of cost reduction measures, the provision of predictive data solutions, and the enhancement of the convenience of use for banking customers. According to [33], the software that is utilised for the purpose of developing and administering databases is referred to as a database management system. Users who are authorised to do so are able to create, secure, access, change, and remove data from databases through the deployment of database management systems [34]. It is necessary to make a significant investment in new programming in order to put into action an efficient data security strategy that simplifies banking processes for customers. It is becoming increasingly important for the modern banking industry to have effective data management [35]. It is necessary to have an efficient data management system in place for records and transactions in order to maintain outstanding customer service, as well as to guarantee accurate results and consistency [35]. Due to the tremendous improvements in technology that have occurred within the banking industry in recent years, it is of the utmost importance to protect one's privacy in the present day. In this context, "offline &

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online" administration of sensitive client data and financial transactions are both included [36].

RESEARCH OBJECTIVES

- To determine how AI will change customer service in India's banking industry.
- To identify how AI could affect customer data privacy and security in India's banking sector.
- To understand the impact of AI on database management systems in India's financial industry, the objective is to get knowledge and insights.

RESEARCH HYPOTHESIS

1. **H_0:** Artificial intelligence & customer service systems do not work well together.

H_1: Artificial intelligence & customer service systems work together well.

2. **H_0:** In terms of privacy & security, AI does not correlate positively.

H_1: In terms of privacy & security, AI correlates positively.

3. **H_0:** Database management systems & artificial intelligence do not perform in tandem hand.

H_1: Database management systems & artificial intelligence performs in tandem hand.

RESEARCH METHODOLOGY

The research methodology that was utilised in this study is a hybrid strategy that incorporates both qualitative and quantitative approaches. Through the use of a questionnaire, the purpose of this survey is to collect information that is obtained directly from the respondents. For the purpose of gathering information, this study makes use of a wide variety of secondary sources, including "websites, journals, books, and other publications". For the purpose of this study, the target demography and sample consists of both public & private sector banks in Gujarat, as well as the customers of such banks. One research concentrates on a single state within the country. There were a total of 197 participants who finished the survey out of the 250 people who were randomly selected for the sample. An approach based on samples was employed in the investigation. Samples taken at convenient times and places a visual depiction of the sample may be obtained through the use of descriptive statistics, which display the total number of items in each category as well as the proportion of those items [37]. Any statistically significant difference in the means of a number of different groups may be identified via the use of an analysis of variance. The practice of measuring the degree of relationship that exists between two variables is referred to as quantitative correlation analysis. The data analysis and interpretation for this study were carried out with the assistance of "SPSS & Microsoft Excel". The process of data transcription and coding was carried out with the assistance of Excel.

DATA COLLECTION

The purpose of this research is to investigate the impact that "artificial intelligence" has had on customer interactions within the Indian banking sector. A wide variety of primary & secondary sources are utilised in the process of information collection. Among the main data that has been collected, surveys have been used. Furthermore, information has been gathered from both primary & secondary sources. Data & information have been acquired from a wide variety of sources, including but not limited to "books, journals, articles, web sites, brochures & promotional materials for businesses". Through the use of secondary data, researchers have conducted an analysis of the many applications of "Artificial Intelligence (AI)" in the banking profession. Their findings suggest that "artificial intelligence is assisting financial institutions" in achieving superior results. This research purpose is to investigate broad uses of "Artificial Intelligence (AI)" that are already being used in the banking industry and to investigate the possible benefits that AI might provide to Indian government-owned & private financial institutions.

QUESTIONNAIRE DESIGN

It is required to develop a questionnaire that is comprised of a series of statements in order to quantify the replies that were provided by the individuals who participated in the survey. The initial set of questions consisted of twenty-one questions that were expressly written with the purpose of assuring that there would be no questions that were controversial, confusing, or misleading. The question was phrased in a way that made it easier for individuals who were responding it to comprehend what was being required of them. The questions were created with the

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intention of determining the feelings of persons regarding the implementation of technology that incorporates AI in the banking sector [38]. These sophisticated precautions were put into place in order to increase the percentage of people who responded [39]. On the worksheet, there was a Likert scale with five points, and the possibilities ranged from "strongly disagree to strongly agree". It was informed to each participant that they should choose one response for each specific item. The procedure of filling out the answer sheet was made easier by the presence of an additional instruction page including further information. The goal of this research is made very obvious on the response page, which also serves to substantiate the notion that it is solely academic in nature. In addition to this, there was an assurance that protection of the respondents' privacy and confidentiality would be maintained [40].

INTERPRETATION & DATA ANALYSIS

In the survey, there were 197 people who participated, and 50.8% of them were male while 49.2% were female. It is possible to classify customers according to a certain age range. 593.35 percent of the total population was comprised of individuals who were between the ages of 18 and 30, 19.78 percent were between the ages of 30 and 40, 12.83 percent were between the ages of 40 and 50, and 8.04 percent were beyond the age of 50. The overall population was comprised of 19% students, 5.5% parents who stayed at home to raise their children, 47% paid workers, 19% self-employed individuals, and 8% individuals who were interested in other economic activities. There was a possibility of non-response bias, which is a regular occurrence in survey research; nonetheless, the validity and reliability of the study were not affected by this possibility. Two different approaches have been proposed as potential solutions to the problem of non-response bias in online surveys [41]. Conducting interviews with persons who did not finish the survey is an efficient way for determining the presence of non-response bias as well as the extent of its impact. Due to concerns over the confidentiality of the information, the adoption of this technology was hampered. In addition, as a guiding concept for our inquiry, we may use the "interest hypothesis," which proposes that persons who do not react have commonalities with those who submit their responses late. This method was utilized in order to compare and contrast the participants who supplied their replies in a timely manner with those who provided their responses at a later period. It is vital to conduct reliability testing because it ensures that the components of a measuring device are consistent with one another [42]. If all of the components of a scale are consistent with one another and measure the same concept, then we say that the scale has a high level of internal consistency reliability [42, 43].

The presence of a strong correlation between variables and the eligibility for factor analysis is indicated by KMO values that are near to 1.0 [45]. The value of Cronbach's Alpha in this study was 0.877, which is higher than the criterion of 0.7. This level of reliability is in line with previous studies. A further point to consider is that the KMO score on this scale is statistically significant. The findings of the investigation are presented in Table 1, which reveals that the KMO and Bartlett tests produced results that were statistically significant, with P values of 0.6 and 0.866, respectively. The study of the data demonstrates that the data is valid and credible when the p-values are statistically significant.

Table 1: Statistics: Descriptive

Particular	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Std. Error
Age	197.000	1.000	4.000	1.492	0.750	1.532	0.178
Gender	197.000	1.000	2.000	1.492	0.501	0.032	0.178
Occupation	197.000	1.000	5.000	2.492	1.229	0.678	0.178
Age	18-28		114		57.87%		
	29-38		40		20.30%		
	39-48		26		13.20%		
	Above 48		17		8.63%		
Gender	Female		102		51.78%		
	Male		95		48.22%		

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Occupation	Salaried	91		46.19%		
	Business	38		19.29%		
	Housewife	13		6.60%		
	Study	38		19.29%		
	Other	17		8.63%		
Valid		197		100%		

According to the numbers presented in the table, there is compelling evidence of discriminate validity, which indicates that the individuals who participated in this research displayed discrimination. A statistically significant regression in the research model is demonstrated by the p-value of 0.816 at a significance level of <.001, as demonstrated in the table that came before it. At the 0.001 level of statistical significance, the R-value of 0.907 is statistically significant, which indicates that there is a strong positive association. Considering that this figure is more than the cut-off value of 0.7, the strength of the association is significantly strengthened. The establishment of a scale's nomological validity occurs when the scale demonstrates the behaviour that is anticipated in relation to other constructs that are related [37].

HYPOTHESES TESTING

H_1: Artificial intelligence & customer service systems work together well.

P value of less than 0.001, which is below the threshold of 0.05, demonstrates that the association between AI and the customer support system is statistically significant. This is indicated by the fact that Table 4 has this information.

Table 2: Reliability & Validity Test

KMO & Bartlett's Test	**Greater than 0.6**	
Sampling Adequacy: Kaiser-Meyer-Olkin Measure	0.866768537	
Bartlett's Sphericity Test	Approx. Chi-Square	612.82416
	df	106
	sig	<0.0001
Reliability	Greater than 0.6	
Cronbach's Alpha	0.897640521	
N	18	

Table 3: Regression Model

Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Sig.**	
1	.907a	0.817	0.833	0.304	<.001b	
ANOVAa						
1	Model	Sum of Squares	df	Mean Square	F	Sig.
	Regression	78.249	5	19.830	204.314	<.001b
	Residual	16.941	183	0.095		
	Total	94.172	188			

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This demonstrates that there is a considerable cause-and-effect link, which lends credence to the idea that artificial intelligence may have a beneficial influence on customer service systems. The good impact that artificial intelligence has had on customer service systems is demonstrated by the fact that there is a substantial connection between AI and a coefficient of 0.138 (t = 5.199) at a significance level of 0.001.0. Consequently, the initial hypothesis is referred to as H1 in this context.

Table 4: Regression Coefficient

Particular		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	Model	**B**	**Std. Error**	**Beta**		
1	(continuous)	36.187	0.367		15.03	<0.001
2	System for Customer Support	0.137	0.05	0.168	5.189	<0.001
3	Security & Privacy	0.256	0.055	0.373	5.538	<0.001
4	Database Administration Platform	.398	0.044	0.364	8.786	<0.001
5	Conviction	0.295	0.053	0.372	7.849	<0.001
6	connection	0.299	0.046	0.347	5.063	<0.001
7	Communiqué	0.171	0.049	0.294	5.166	<0.001
8	Shared worth	0.283	0.051	0.385	6.564	<0.001
9	Compassion	0.235	0.043	0.293	4.742	<0.001
10	Reciprocity	0.372	0.056	0.297	5.263	<0.001

2. H_1: In terms of privacy & security, AI correlates positively.

As per the details shown in Table 4, statistical proof showing the P value of the association between AI and privacy and security is below the threshold of 0.05, precisely less than 0.001, lends credence to the claim that artificial intelligence significantly improves both privacy and security. This suggests that there is a considerable link between cause and effect. There is a positive correlation between artificial intelligence and privacy and security, with a coefficient of 0.138 (t = 5.199) and a significance level of less than 0.001. This indicates that the association between these two concepts is significant. Consequently, we are able to validate second hypothesis H1.

3. H_1: Database management systems & artificial intelligence performs in tandem hand.

With a P value that is less than 0.001, which is below the threshold of 0.05, the statistical analysis suggests that the association between the database management system and artificial intelligence is extremely significant. This conclusion is based on the data that is shown in Table 4, which can be found here. This demonstrates that there is a considerable cause-and-effect link, which lends credence to the idea that artificial intelligence has a beneficial influence on database management systems. There is a positive correlation between artificial intelligence and database management systems, with a coefficient of 0.138 (t = 5.199) and a significance level of less than 0.001. This indicates that the association between these two concepts is significant. As a result, we have decided to adopt the third hypothesis, which is denoted by the letter H1.

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RESEARCH FINDINGS

Due to the fact that it concentrates on the investigation of dependability requirements, the study is both distinctive and significant. The results of this research shed light on the several positive ways in which artificial intelligence is influencing the connections that exist between financial institutions and the customers they serve. The purpose of this study is to provide light on the many ways in which financial institutions make use of artificial intelligence in their connection marketing strategies. According to the findings of this study, "Artificial Intelligence (AI)" has the potential to aid financial institutions in efficiently connecting with their customers regarding a variety of programmes, bond yields, fees, and other topics linked to banking. Artificial intelligence may be utilised by financial institutions in a variety of domains, including applications for privacy and security, database management services, and customer support management systems. Specifically, this is due to the fact that artificial intelligence provides clients with user-friendly interfaces, functions that save them time, and greater convenience. The usage of customer relationship management (CRM), virtual assistants, and chatbots is the most advantageous solution for clients who are concerned about cost. This is because these options allow for speedier replies while reducing the amount of time and investment required. Clients are able to readily access the service, inquire about it, and improve their grasp of the things prior to making a purchase while using AI-driven financial services since these services provide a user-friendly interface. Customers may have a sense of ease while using banking services since these services can offer helpful assistance with budgeting and provide instructions on how to create habits of saving money. Instead than relying on email or human advisers, customer care management runs around the clock to provide clients with services that are timely and responsive. The four components of credibility—honesty, expertise, reputation, and predictability—can be consistently maintained by financial institutions in order to guarantee the dependability of the services they provide to their customers. In addition to receiving important transaction information, changes to the deposit accounting system, forthcoming payment alerts, repayment schedules, credit limit data, and credit history as messages from financial institutions, customers are able to make payments to financial institutions in an expedient manner using multimedia devices that are powered by artificial intelligence. The confidentiality and safety of the private information of customers is a top priority for banking services, and they take measures to prevent this information from being shared with other websites. In spite of this, banks simply cannot afford to be without security in the present day and age. As a result, they have developed security control measures in order to protect the privacy of their customers, guarantee authenticity, and keep their messages confidential while also ensuring that they are sent securely. According to a number of studies, a number of models are utilised in order to improve the accuracy of the process. This, in turn, strengthens the connection between the consumer and the financial institution, and it also helps to develop an outcome that is mutually advantageous for all parties concerned. In order to remain competitive with industries other than banking, financial institutions need to use relationship marketing strategies that make use of cutting-edge technologies.

CONCLUSION

Numerous transactions are carried out by millions of customers on a daily basis. Customers were the ones who came up with the information, and it is securely stored and handled in a massive database. The bulk of banking tasks involve a large amount of manual effort, which not only makes the issue worse but also serves to exacerbate it. "Artificial intelligence" makes it possible to reduce the amount of manual labour that employees and customers have to do. In recent years, developments in "artificial intelligence" have made it possible to simplify a process that was before difficult and impossible to do. Relationship management has been improved in the banking business by the provision of a wide range of practical solutions that guarantee security, convenience, and standardisation. In light of the fact that these technologies are under continual development, it is wise for a firm to incorporate them into a variety of different departments. There are many different areas within the banking industry that are prepared to implement the most recent innovations, and the use of modern technology is essential for maintaining and enhancing the safety of the financial system. Currently, consumers have a great desire for their banks to be leading the way in technological innovations. Increasing the bank's technological capabilities will strengthen its position by improving the quality of its services, as well as its security and safety. Customers are currently opting for internet and phone banking due to the fact that these methods are the most efficient and user-friendly types of banking. There have been several studies that demonstrate that various models are utilised in order to improve the accuracy of the process. This, in turn, leads to an improvement in the connection that exists between consumers and banks,

therefore generating a scenario that is mutually advantageous for all parties concerned. To maintain their competitive edge in industries other than banking, financial institutions need to use relationship marketing strategies that make advantage of the most recent technological advancements. The banking industry has reaped major benefits and advantages from automation. A technological advancement known as "Artificial Intelligence (AI)" should be implemented in the banking industry in order to improve the effectiveness and creativity of consumer banking. The good news is that artificial intelligence offers a broad variety of applications that have the potential to improve the effectiveness of banking operations and to make it easier to provide superior financial services.

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