Artificial intelligence impact on banks clients and employees in an Asian developing country

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Abstract

Purpose – *The purpose of this paper is to discuss the application of artificial intelligence (AI) in banking sector, its impact on banks employees and consumer behavior alike when buying financial services and the importance of (AI) for delivering social services in a western Asian developing country: Lebanon. The author tried to respond to the following problematics: Would AI be able to replace man power in customer service? and would AI change the job of the banker and render the bank more profitable?*

Design/methodology/approach – *The data collected and analyzed was used in a quantitative research-based models with the application of hypothesis regression models. The results obtained has helped despite the fact of its innovative framework, AI cannot replace the role of humans when it comes to client's interactions with banks employees.*

Findings – *AI elevates the quality of banking transactions to an upper edge. Some of the technical banking jobs might be in jeopardy with AI, as the technology can be easily replaced with human resources, but when emotional intelligence is required for banks clients/employee's relationship management, AI has been found with no ability to supersede.*

Research limitations/implications – *Researchers in the future can also compare large banks called alpha banks to smaller banks in the same developing country to further test the possibility of adopting innovation and change through AI in different sizes of banks with larger number of employees, financial resources and corporate clients.*

Practical implications – *Fears regarding impact on employment were detected, AI could render many banks' jobs obsolete in the coming years, asserting that AI and robotics ''reduce the need for staff in roles such as back office functions. Data suggests that the proliferation of AI could be accompanied by a rise in banking jobs. It may also be the case that only the most mundane jobs such as data entry will be sacrificed for machine superiority. While a rise in job numbers associated with higher AI-adoption rates seems ideal, some evidence suggests that most financial institutions are not yet fully confident in how to effectively apply the technology for the best results but at the same time seemed to be receptive to using AI and machine learning in their organization.*

Social implications – *This study was conducted and limited to one developing Asian country, it would be useful to stretch this study covering other countries in the region to dive into more diversified results that could trigger researchers to compare more the adoption of AI in Asian countries and evaluating its impact with respect to different countries size and/or level of development in addition to other demographics and criteria.*

Originality/value – *Financial institutions are increasingly using artificial neural network systems to detect fraud and charges that do not meet the standard. The AI is used to: organize transactions; keep accounts; invest in stocks; optimize portfolios, etc. Reducing the number of frauds and financial crimes in Lebanon by monitoring user behavior to detect abnormal changes or anomalies in addition to the possible rectification of human economic behavior in the Asian region, this could add a great value and high originality to the research.*

Keywords *Consumer behavior, Employability, Artificial intelligence*

Paper type *Research paper*

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1. Introduction and context of the study

1.1 Introduction

In recent years, artificial intelligence (AI) has shifted from an emerging technology to a popular tool for improving business efficiency. AI, if well implemented, this cutting-edge technology can promote socioeconomic and ecological developments (Fosso Wamba *et al.*, 2015) and enhance the quality of life (De-Arteaga *et al.*, 2018) of Asian countries. Specifically, if this region and area of study in this research is a western Asian developing country considered as the centre of economic and social activity for Western Asia, Lebanon. Thus, AI has the potential to bring great value to Asian countries in wide areas such as reshaping competitive advantages (Akter *et al.*, 2020), it will improve the perception of change at the customer. Also AI could develop new knowledge (Harfouche *et al.*, 2017) and revolutionize many economical sectors such as agriculture (Harfouche *et al.*, 2019; Saba *et al.*, 2018). In the case of this research, the author is focusing on the banking sector which is the most developed in Lebanon. For example, instead of deposit promotions, banks can use the AI to customize their offerings based on customer behavior and needs. To improve the relationship with customers, banks place responsibility for the relationship with professionals, allowing process designers to leverage AI to support much of the process-driven work. where finance professionals have been concentrating for years, taking the time and attention of their clients.

Our era is rich in technological advances, where almost everything that has been done manually is gone, and a lot of work is being relayed to machines, software and various automatic processes. In this respect, AI occupies a special place in all the progress made today. It is nothing but the science of computers and machines developing intelligence similar to the human intelligence. With this technology, machines are able to perform simple and complex tasks that humans must do regularly. As AI systems are used daily, so our lives have also evolved with the use of this growing technology.

One of the most valuable achievements of financial institutions is the ability to provide customers with the best products and services, with more satisfaction and fewer complaints. Thus the ability to make decisions that affect financial innovation is important. Probably, this is because decision-making is only about developing a perfect course of action for the future, this plan is in turn based on the best alternative or substitute product that maximizes efficiency and effectiveness.

In other words, AI is the technology that can think and act on its own. It is, therefore, perfect for complex trade applications where speed and efficiency are powerful. AI scours a huge pile of data to offer the most profitable trading options when the money advisor could take his time. The future of trading is to process information, develop and validate models in real time.

AI makes a real difference in financial transactions by harnessing important data and providing inexpensive and readily available tools that benefit everyone, not just businesses. AI systems use a cognitive reasoning engine that makes inferences based on rules and data. This means that this AI can justify every decision it makes and produce it as a human being.

AI can learn patterns and develop successful algorithms that can change from time to time depending on the situation. While a range of options and ideas remain proprietary, it can be argued that the return on investment can be excellent, as data management and processing will be more efficient.

Banks carry out many activities on a daily basis which must be carried out with precision. Most activities require a lot of time and effort on the part of employees and sometimes there is also a chance for human error in these activities. Some work involves investing money in equities, financial operations, managing various properties and so on. (Bedford *et al.*, 2018)

Through the use of the AI system in this process, institutions are able to achieve powerful results in a short time. The strategic implementation of the use of the artificial helps them to focus on each customer and provides them with a quick resolution.

Financial institutions are increasingly using artificial neural network systems to detect fraud and charges that do not meet the standard. The AI is used to: organize transactions, keep accounts, invest in stocks, optimize portfolios and manage properties. Amnesty International has also reduced the number of frauds and financial crimes in Lebanon by monitoring user behavior to detect abnormal changes or anomalies. People are now using ATMs instead of going to the bank and paying via POS points rather than cash. Thus, this new technology has been able to rectify the economic behavior of people.

For example, AI-based buying and selling platforms have modified the law of supply and demand in that it is now possible to easily estimate customized supply and demand curves and, therefore, customized prices. In addition, AI machines reduce asymmetric information in the marketplace and thus make the markets more efficient while reducing the volume of transactions.

AI definitely changes the career of bankers. With respect to credit decisions, the banker requires fewer interactions and communications. His role will be to evaluate applications received online. AI processes data and provides a faster and more accurate assessment of a potential borrower at a lower cost and takes into account more factors, allowing for a better informed decision to offer custom options. AI helps lenders distinguish between high-risk and low-credit risk applicants who do not have a significant credit history. Objectivity is another advantage of the mechanism powered by AI. Unlike a human being, a machine is not likely to be biased.

Chatbots are installed to improve communication between clients and the agency while reducing call center workload. This tool allows customers to check balances, schedule payments and view bank account activity.

In addition, several AI-based applications offer personalized financial advice. These smart systems track revenue, critical recurring expenses and spending patterns and offer an optimized financial plan and advice. So, we no longer deal with agents or bankers, but with robots that answer our questions and, most importantly, guide us to the steps to follow to complete the transaction. The largest US banks, such as Wells Fargo, Bank of America and Chase, have launched applications that remind customers to pay their bills, plan their expenses and interact with their bank in a simpler and more rational way instead to make transactions through the bankers. (Kauflin, 2019).

It cannot be denied that some jobs will be destroyed, but other jobs are taking place. According to studies developed, AI can eliminate routine and repetitive jobs to focus on larger activities generating bank values and which will require a high level of digital skills. (Mallah Boustani, 2020)

In addition, these transformations can affect employees' incomes. Hence a decrease in wages will occur for those with low numerical skills while others who will benefit from generous technological skills, will receive high salaries.

Thus, when AI is implemented in banking services, the interaction of bankers decreases. As a result, new technical and digital job descriptions will be involved. In other words, the bank will need to hire information technology engineers, programmers, developers and analysts to keep up with the revolution in financial technology and AI.

AI facilitates the banker's job because robotic systems require less manual effort. Banks are turning to robotic automation of processes to reduce operational costs, increase productivity and serve consumers quickly. Intelligent Character Recognition automates a variety of mundane and time-consuming tasks that once required thousands of hours of work and inflates the payroll. Software verifies data and generates reports, examines

documents and extracts information from forms (applications, agreements, etc.). Robotic process automation for high-frequency repetitive tasks eliminates the possibility of human error and allows a financial institution to refocus its efforts on processes that require human involvement.

AI initiatives can also provide the bank with higher standards for smart trading capabilities that will allow serious differentiation of competition. Many of these capabilities have been around for years, but the advent of powerful analytical resources and the storage and mass management of data at significantly lower prices have paved the way for widespread adoption. The end result will be that banks will be smarter, operating under significantly lower operating cost models, offering more sophisticated, customized and tailored services to this increasingly competitive and regulated market.

AI has grown in recent years and financial services companies are now looking at potential applications in both investment banking and retail banking. Lawyers tout the potential of RNs in all areas, from bond markets to savings accounts. Biancardi (2017) and according to a survey conducted by the Lebanese Bank (BDL) on Lebanese banks, an optimal scenario of limited disruption suggests that AI technology could potentially generate an increase in revenues of 3.4% and cost savings. 3.9% over the next three years. As the money invested in this technology will be doubled in profits and realized results, the future of banks remains more and more in the use of AI.

2. Research statement

AI is the science of computers and machines whose mission is to imitate the human brain through analysis of events and decision-making. This new technology might affect many sectors in finance, medicine, automobile and others. Today the banking sector is looking to AI as becoming a major asset because of its advantages in improving banking transactions and customers experience alike.

It should be noted that in Lebanon country, in general banks customers are satisfied with the quality of banking services, and they prefer to carry out operations through banks rather than through fintechs and others institutions, as they consider them as more secured and trustful. Said that, many banks in Lebanon today are considering the revision of their traditional business models for the adaption and implementation of Artificial Intelligent and similar systems as an attempt to further improve quality of operations and keep things up with their leadership in the industry.

Therefore, with change and transformation usually major problems arise. Today AI is a cutting edge technology under the usage by financial institutions with an aim to uplift the quality of operations and encourage more effectiveness. However, AI in banks is defined as a financial innovation that could encapsulate a major problem subject to assessment in this research paper. It is worth investigating the influence and effect of banks (AI) on their clients behavior and relationship and its feasibility impact on banks employees.

3. Literature review

3.1 Theories of consumer behavior in the banking system

For a better understanding of consumer behavior in banks and financial institutions providing a variety of monetary and financial products and services, several theories and models are developed below.

3.1.1 Passive repetitive. Consumers have a low level of participation in the financial product because they are fully aware of the main characteristics of the product. In addition, they can be characterized as passive in that they will perform repeated interactions without actively seeking alternatives. Brown (1952) and Johnson (1973, 1982), for example, have identified markets and social factors that encourage or constrain individuals to engage in repetitive

behaviors. Their work indicates that considerations such as the lack of an incentive to search for alternatives and the lack of incentives to change buying patterns encourage consumers to maintain existing buying habits. In addition, these consumers adopt a narrow rational approach to their purchasing and contracting behavior (Simon, 1957). Repeated purchases from a single source or type also reduces the "cost" of purchases by limiting uncertainties, while a more rational approach can expose the consumer to uncertainties that could lead to financial losses.

3.1.2 Rational-active. It is postulated that consumer involvement in terms of the dimensions of the process of control, participation and contact is high. Economic theory holds that consumers have the choice, the ability and the desire to make purchasing decisions carefully. Etzioni (1988) argues that individuals make decisions more or less rationally depending on the nature of the environment of choice and the object purchased. Within these purchases, the consumer can formulate requirements and use short-term contracts to structure the purchase. Macneil (1978, 1980) described these contracts as "discrete" because they have a clear start, a short duration and a definite end. No interaction is expected after the transaction. There is a clear division of benefits and costs, disputes are settled by reference to the original contract and transfer costs between contracts are low. Discrete contracts reflect the characteristics of the product or service being processed and the underlying rational behavior of the decision-maker. Consumers will tend to use discreet and rational contracts to structure their purchasing behavior, as this allows them to reduce transaction costs and exercise a high degree of control over the purchase decision (Etzioni, 1988). To buy in a "rationally instrumental" way, the individual consumer is supposed to have sufficient capacity and information to enable him to make clear comparisons between competing products and to make an informed choice. If the information is not available or if the consumer does not have the ability to make choices, he must move away from the instrumental rationality because discrete outsourcing is no longer an effective way of structuring transactions.

3.1.3 No purchase. Those consumers who, have no involvement in the financial product and have neither the ability nor the confidence to make transaction decisions, make no purchase. For example, some consumers deposit large amounts in their bank accounts instead of buying financial services and enjoying high returns. However, an essential part of marketing activities is aimed at these people, with the aim of raising their awareness and encouraging them to take advantage of substitute products and to convince them of their relative merits.

3.1.4 Relational – dependent. Consumers are heavily involved but are not under control because of the complexity of the product and the uncertainty of the end result, which reduces consumer confidence. To choose and make a decision, the consumer will seek advice and help from bankers, so he can be seen as a dependent consumer who builds relationships to lessen uncertainties and order his buying habits. Relational contracts do not fit easily into the concept of active or passive interaction, but it is clearly an important aspect of the banker–client relationship. The works of Macneil (1978) and Williamson (1975, 1985) show that active rational contracts and repetitive-passive contracts are not effective in structuring trade. It is used in highly uncertain environments where consumers do not have the information to make rational decisions, as well as differences in the perception of quality between competing products or services. In this case, they will want to make informed choices and will have to rely on more informed third parties. The relationship effectively replaces the research and information processing activities found in repetitive/passive contracts and rational/active contracts. Trust plays a vital role in this relationship and the role of professional associations is to protect consumers from third parties acting opportunistically.

3.2 Theories of employability in the banking system

Employability is defined as the ability to obtain and keep a formal job, or to find a new job if necessary. The problem has contributed to reasons of unemployment that are often affected by economic and psychological factors related to employability. Therefore, psychologists from industry and organizations should be particularly well placed to promote the development of policy solutions to improve employability. Many researchers have classified employability according to their definitions and their different approach.

According to Dacre Pool and Sewell (2007) "Employability is based on a set of skills, knowledge, understanding and personal attributes that make a person more likely to choose and secure jobs where they can be satisfied and succeed."

Dearing (1997) had a more complicated understanding of employability in relation to the emphasis on the personal qualities of students, suggesting less attention to these qualities and more attention to generic academic skills. However, one could assume that the individual's personal competencies could have a significant influence on a student's success in particular in terms of employability.

According to Bandura (1995), self-efficacy is a belief, "an ability to organize and execute the actions necessary to obtain knowledge." Indeed, "the level of motivation, affective states and actions of people are still based on what they believe rather on what is objectively true." Employability is related to work and ability to work, such as the ability to get a first job. The ability to save a job is to make "transitions" between jobs and roles within the same organization to meet new job requirements. The ability to obtain a new job if necessary, i.e. to be autonomous in the labor market and to be able to manage the own job transitions between and within organizations (Van der Heijde *et al.*, 2009) of the work by an optimal use of the efforts).

Morley (2001) argues, however, that employability is not just about student deposits in a skill bank.

Knight (2001) further considers that the notion of employability is "a synergistic combination of personal qualities, skills of different types and understanding of the subject." Graduates will need to be flexible and have the personal skills to handle changing and challenging work situations. Employers seek to recruit qualified graduates to transform and grow the business by facilitating innovative teamwork.

According to Knight and Yorke (2004), employability is perceived to be influenced, among other things, by students' beliefs about self-efficacy, their theories and their personal qualities. Both researchers point out that the crucial importance is that students think they can "make a difference." What is important is not only expanding the scope to include more attributes needed to succeed in the job, but also managing career development to maintain employability.

Lee (2001) defines employability as the ability of a graduate to obtain satisfactory work, saying that the acquisition of a job should not have priority over job readiness, to avoid a pseudo-job measure of individual employability. Lee argues that employability is not a set of skills but a set of experiences and attributes developed during higher level learning, so employability is not a "product" but a learning process.

The Berntson *et al.* (2008) study divides employability into two categories: actual employability (objective employability) and perceived employability (subjective employability). The ability to succeed in a career depends on two essential factors: Self-confidence and effectiveness in influencing career intentions

In addition, the candidate, once employed, does not stop learning; everyone is looking for lifelong learning to develop and get to better positions.

3.3 Theory of financial innovation

It is the process of translating an idea or invention into a good or service that creates value. To qualify as innovation, an imagination must be reproduced at an economic cost and meet a specific need.

When creating a new financial product, a financial engineer must acquire knowledge of optimization and financial modeling techniques in addition to the basics of financial management theory. The following are different points of view on financial innovation:

- Verghese (1990) states that it is necessary to look closely at the main features of the current wave of financial innovation and to objectively evaluate what it has achieved and at what cost. It is also important to identify the lessons of financial change and innovation. He began with a thorough study of financial innovations in India.
- Marshall and Bansal (1992) ranked the causes of risk increase in two: environmental and intra-firm. And this classification is used to analyze why the increased risk and major developments in finance as a whole have created an environment conducive to rapid growth in financial innovation.
- Miller (1992) focused on the future perspective of financial innovation and explained the functional perspective of financial intermediation. His research focuses on financial innovations, reducing the cost of capital and financial risks, improving financial intermediation and thereby improving well-being. He also said that "the progressive need for financial innovation to stimulate economic growth and corporate operations can indeed be perceived by explaining the functions it has fulfilled."
- Levine (1997) believes that most empirical studies have confirmed that finance is at the heart of any economy that drives economic growth. Financial innovation plays a significant role in economic growth and business restructuring, particularly in emerging economies.
- Tufano (2003) examines a sample of new titles to determine whether financial product innovators are benefiting from the first-mover advantage. It notes that, during the period 1974–1986, investment banks which created new products did not charge higher prices in the period before the appearance of the imitative products and that they practiced in the long term lower prices than their rivals. It provides the standard explanation for financial innovation and helps to correct, to some extent, inefficiency or market imperfections. For example, if markets are incomplete, financial innovation can improve risk-sharing opportunities. If there are agency conflicts, new types of security can improve alignment of interests. Another important motivation for financial innovation is the reduction of taxes or the avoidance of the effects of financial regulation. With the intention of successfully introducing the desired financial vision, customers must benefit from this innovation.

3.4 Theoretical framework

This paper's theoretical framework shall identify and labels the important variables in the situation that are relevant to the problem defined. It should logically describe the inter-connections among the dependent and independent variables. With respect to the problem statement and theories presented in the literature review this theoretical framework shall be constituted of two schematic diagrams that will be tested independently.

Schematic (1)

Dependent variable	*Independent variable*
Banks Clients Acceptance Banks Clients Satisfaction Time Efficiency on Clients	Use of (AI) as a Financial Innovation

Schematic (2)

Dependent variable	*Independent variable*
Transformation of the Banking Profession Fluctuations in Banking Jobs removal & creation Soft Competence Jobs Requirements	Use of (AI) as a Financial Innovation

4. Research methodology

4.1 Approach

For this research multiple problem or also called questions have been investigated further in compliance with the theoretical framework described earlier. The core orbited around an impact and causal and effect relationship of AI as a financial innovation tool with Banks clients and Banks employees and jobs that are defined in the hypotheses for testing as follows:

H1. With AI technology usage, banks customers shall be more satisfied from the experience.

H2. Banks customers accept automated and human customer service equally.

H3. AI technology in banks encourage time efficiency.

H4. Financial innovation of AI technology shall lead to transformation in the banking profession.

H5. Financial innovation of AI technology shall lead to removing certain jobs in banks and creating others.

H6. Financial innovation of AI technology can cover jobs soft skills requirements.

For that, the data used was mainly quantitative and expressed in numbers for their eligibility in assessing the related hypotheses in this regard and considered as primary data collected by the researchers. There was some rationale and assumptions that could have underpin our methodology that are directed to the AI subject matter understanding by our banks clients random sample. Sometimes people know about AI concepts without knowing that it was called as such.

Therefore, thorough explanation was deemed mandatory to secure a suitable approach of answering the questions. With regard to ethical or philosophical considerations, nothing sensitive to register as the research subject matter and related questions do not embolden for risks like that.

4.2 Data collection

Two kind of questionnaires were designed to answer the research questions and addressed to banks customers and to banks employees. The survey is divided into two

schemes where both schemes were designed through Likert scale and participants have been randomly selected while securing their proper attribution to the survey schemes as being banks clients or banks employees. The two surveys schemes are as follows:

Scheme (1) survey had been sent to 250 people that are mainly individuals of different age and social groups dealing with banks on a personal (individual) and retail aspects and considered as Banks clients. The data collection in scheme (1) shall be targeted for the testing *H1*, *H2* and *H3* and experiment how AI could improve the perception of change in customers and testing.

Whereas Scheme (2) survey addressed 50 banks employees, of different positions and ranked, all working with prominent and primary ranked banks in Lebanon including (Byblos Bank, Blom Bank, SGBL, Audi and Lebanese Credit). The data collection in this scheme is important as it aids in testing *H4*, *H5* and *H6* that can help understanding the impact of AI on banks processes, employees behaviors and jobs transformation.

4.3 Methods of analysis

The research data analysis used the SPSS statistical software to test different linear regression the hypothesis schemes, assess their levels of and sustainability of hypothesis statements. At first, data validity shall be tested through Cronbach's alpha to conclude its reliability. In both schematics Cronbach's alpha is higher than 0.7.

	Reliability statistics	
	Cronbach's alpha	*No. of items*
Schematic 1	0.832	21
Schematic 2	0.714	29

5 Results and findings

5.1 Schematic 1

H1. With AI technology usage, banks customers shall be more satisfied from the experience. To determine whether ***clients accept the introduction of new (AI) systems*** one must first make sure that they are already familiar and satisfied with existing technologies on the market.

The same test is used to confirm our second hypothesis concerning customer satisfaction with banking services using technologies (ATM, Online Application [...]. The scale of answers is between 1 and 5. The average obtained is $3.92 > 3.5$.

Therefore, it is deduced that customers are satisfied with the use of technologies. This indicates that they are ready to accept AI technologies that are able to facilitate their transactions.

H2. Banks customers accept automated and human customer service equally. First, to find out if the installation of new AI technology solves customer problems in the same way as the human intervention from a bank customer service manager, the above hypothesis statement is applied. The average obtained is $2.98 < 3.5$. So the hypothesis alternate is rejected and null accepted. Researchers referring to the theory have arrived at the same result, AI cannot replace customer service representatives. AI strength lies in organizing information and rendering the electronic processes more effective.

H3. AI technology in banks encourage time efficiency. Adopting AI technologies in banks shall lead to the reduction of time waste. The average score obtained is 3.75 which is

greater than 3.5 and p-value < 0.05. So the hypothesis is accepted and null rejected. AI technology would be regarded as a great source for speeding up banking transactions.

Schematic 2

H4. Financial innovation of AI technology shall lead to transformation in the banking profession. From data processing and outputs obtained, it is noticed that the first average is equal to $3.92 > 3.5$, in addition to p-value < 0.05, so the hypothesis is accepted and null rejected. Hence, AI will help the employees to wipe off annoying tasks leading to increased productivity.

H5. Financial innovation of AI technology shall lead to removing certain jobs in banks and creating others. For instance, when it comes to AI contributing in removing some jobs and creating others, the average observed is equal to $4 > 3.5$ with a p-value less than 0.05, leading also to retention of hypothesis and rejection of the null.

H6. Financial innovation of AI technology can cover jobs soft skills requirements. For *H6*, the total change of jobs is found unacceptable, as the average = $3.26 < 3.5$, so according to this statistical manipulation, so far the input and engagement of AI cannot fully take over human interventions. Hence, *H6* is rejected and null accepted.

6. Conclusion and implications

AI manipulates customers' data to analyze their needs and offer more developed and customized products.

In fact, this technology already offers many opportunities: from customer relations to claims management, to pricing, risk management and fraud detection, AI should drastically reduce some costs and freeing up part of the staff, while improving the speed of execution and, by extension, customer satisfaction. But "the development of these technologies should naturally be without or minimal risks."

Moreover, AI is at the root of innovation specially in Lebanon being is a western Asian developing country where the potential of growth is still very high and the implementation tools of new technologies are still embryonic. It is still in its infancy in the Lebanese banking sector. In addition, it strives to provide personalized services of high quality in an efficient and effective manner.

This technology is not a substitute for human power but rather a substantial technical assistance. Despite this technological advancement, humans shall still be responsible for building long lasting relationships that can affect their business cycle, decide on improving their administrative processes, engaging in strategies and leading staff and developing people.

In conclusion, many implications could be drawn and extracted from this research.

First, fears regarding impact on employment were detected, AI could render many banks' jobs obsolete in the coming years, asserting that AI and robotics "reduce the need for staff in roles such as back office functions." At the same time, however, data suggests that the proliferation of AI could be accompanied by a *rise* in banking jobs.

It may also be the case that only the most mundane jobs such as data entry will be sacrificed for machine superiority. While a rise in job numbers associated with higher AI-adoption rates seems ideal, however, some evidence suggests that most financial institutions are not yet fully confident in how to effectively apply the technology for the best results but at the same time seemed to be receptive to using AI and machine learning in their organization.

Moreover, the study was conducted and limited to one developing Asian country, it would be useful to stretch this study covering other countries in the region to dive into more diversified results that could trigger researchers to compare more the adoption of AI in Asian countries and evaluating its impact with respect to different countries size and/or level of development in addition to other demographics and criteria.

Further study can introduce a SERVQ model as a third scheme that combine soft and hard instruments showing the application of this method and enabling the author to extend their researches and analysis and to define the opinions of practitioners.

Furthermore, researchers in the future can also compare large banks called "alpha banks" to smaller banks in the same developing country to further test the possibility of adopting innovation and change through AI in different sizes of banks with larger number of employees, financial resources and corporate clients.

Last but not least, researchers find it crucial and interesting to forensically investigate about the relationship between types of banks clients and their coping willingness to AI solution.

Finally, the results of those above implications could make authors dive into another research and respond on many questions on how exactly banks can co-ordinate AI's awesome supremacy with the customer's need for human interaction when needed? Would the effect of AI on large banks be different than on small ones? Would AI features and advantages be beneficial for individual and corporate customers alike?

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