

Artificial Intelligence Adoption in Finance: Antecedents, Perceived Quality Outcomes Model in a Banking Sector

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Abstract: This paper addresses the critical challenges in characterizing musculoskeletal mortality, a prevalent and serious non-communicable condition affecting nearly one in three women and one in five men over the age of 50 worldwide. Globally, musculoskeletal mortality impacts approximately 200 million women, with prevalence rates of 23.1 in women and 11.7 in men, reaching its highest incidence in Africa at 39.5. This study leverages extensive datasets and advanced computational techniques, including machine learning models such as Decision Trees (DT), Artificial Neural Networks (ANN), and a hybrid DT-ANN approach, to improve diagnosis, treatment options, and disease management. By integrating data-driven methodologies with medical imaging, this innovative approach aims to enhance diagnostic accuracy and optimize patient outcomes. Furthermore, the proposed framework facilitates personalized treatment strategies through comprehensive analyses of clinical and genetic information, reinforcing the role of cutting-edge technology in transforming musculoskeletal mortality research and healthcare practices.

Keywords: Healthcare issues, diagnosis of Musculoskeletal mortality, Artificial Neural Network, Decision Tree, the hybrid DT-ANN, machine learning technique.

1 Introduction

Over the course of the last several years, Artificial Intelligence (AI) has significantly emerged as an influence in the banking business. The idea that it could cause major social change is a key point of contention. The availability of a wide variety of new tools enables this transition. Businesses in the financial sector, such as banks, are increasingly turning to artificial intelligence (AI) to accomplish these objectives. The objectives of the deployment are to enhance customer service, ensure that regulations are adhered to, identify fraudulent activities, and increase the efficiency of process automation. According to [1] and [2], the COVID-19 pandemic was a significant factor that contributed to the rapid adoption of artificial intelligence by people all over the globe. The

reason for the rapid adoption is that financial institutions exerted a great deal of effort to maintain their digital strength, even when difficulties suddenly sprang into existence. The authors [3,4,5] state that there are still a great many issues that make it difficult to properly incorporate artificial intelligence. Some of the issues that need to be addressed include organizations that are not prepared, places that place an excessive amount of reliance on suppliers, laws and regulations that are not clear, and financial deficiencies. On the other hand, artificial intelligence comes with a number of advantages. These advantages include increased efficiency, predictive analytics, and tailored service delivery.

There has been previous study that has explored the use of artificial intelligence; however, the bulk of these studies have focused on developed nations and have placed an emphasis on consumer perspectives or general

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technical acceptance [6]. A very small number of models provide an integrated framework that establishes the relationship between the variables preceding adoption and the subsequent financial outcomes in emerging countries. Both the Saudi Central Bank (SAMA) (2023) and the World Bank (2022) see artificial intelligence as a key way to improve financial innovation, openness, and competition. In 2022, the World Bank stresses how important artificial intelligence is. Because of Vision 2030, the Middle Eastern financial industry, especially in Saudi Arabia, is going through a faster digital change. This phenomenon is especially true in Saudi Arabia. The country of Saudi Arabia is the setting for this revolution that is now taking place.

A recently conducted empirical study has indicated that banks still have problems with trust, legal systems, and relying on vendors. Even though banks know that AI could help them make better financial decisions and provide better service [7], this is still the case. The results of this study show how important it is to do research that is useful to the place where it is done. As part of this type of research, it is important to look at how organizational, technical, and social factors affect uptake. Furthermore, it is important to look at the changes that happen in terms of quality as a result of acceptance. This is because adoption poses a number of challenges associated with quality. Consequently, the purpose of this research is to create and verify via experimentation a complete model of the use of artificial intelligence in the Saudi banking industry. This is the aim of the study. The model establishes a distinct connection between the most important antecedents and the outcomes that are recognized, which is significant from the perspective of financial reporting, decision-making, and the provision of services. Furthermore, because of this, it gives a contribution to the application of theory and practice in the realms of finance, artificial intelligence, and information systems. As a result of this, it satisfies a big need in the existing body of research, and, at the same time, it fills a significant vacuum in the research that is currently being carried out.

2 Review of the Literature

The integration of artificial intelligence into finance is driven by increased consumer interaction, lower costs, and greater forecasting accuracy. These applications include detecting fraud, managing customer relationships, credit scoring, and algorithmic trading [8,9]. In banking, AI also supports financial inclusion by offering low-cost digital services to underserved groups [10]. The research identifies concerns regarding algorithmic bias, data privacy violations, and insufficient transparency in decision-making processes [11]. The Technology-Organization-Environment (TOE) paradigm, which provides a comprehensive framework for

understanding the adoption of technology at the organizational level, serves as the foundation for this research [12]. According to the framework, the process is influenced by three different elements: the Technological Context (financial information quality, financial system quality, perceived benefits), the Organizational Context (organizational support, organizational readiness, innovation orientation), and the Environmental Context (vendor support, government support).

This is a major breakthrough in the realm of auditing. The advantages might be significant. As a result of the fact that the audit process was able to discover any irregularities by examining the complete populations of transactions, the audit process became more effective and efficient [13]. It is simpler to maintain tabs on behaviors that are unethical and to provide clients more sophisticated services as a result of these advancements. Furthermore, risk functions, which include perceived financial risk and perceived security risk, are also incorporated into the architecture.

The Theory of Organizational Economics (TOE) paradigm is very important for this research project because it lets us look closely at all the factors that influence the use of financial accounting information (FAI) in Saudi Arabia's unique setting. This method enables researchers to conduct an investigation of a variety of different cultural, economic, and legal elements that might have an impact on how people feel about artificial intelligence technology. It is possible that the adoption of the TOE framework would result in the generation of significant insights that will be beneficial to both the policies and the practices in the sector. It is crucial to have an understanding of both the benefits that it provides and the issues that it solves in order to understand the factors that play a role in the adoption of Financial Access Infrastructure (FAI). The term "data analytics" refers to the methodical examination of an extensive array of unprocessed data, which is also known as "big data," according to [14].

The objective of this technique is to provide insight, uncover relationships, make forecasts, and provide assistance in the decision-making process. The goal is to fulfill all of these conditions. In order to study and evaluate large quantities of data that have been extracted from the operational and financial systems of their clients, auditors are necessary to use the most up-to-date technology. The equipment is required in order to implement this requirement. Data management in the field of economics is improved by the use of data analytics technologies, which are used to uncover patterns and correlations. As a result, managerial performance and profitability are both improved. During the course of auditing, enterprises make use of big data analytics in order to uncover patterns, anomalies, and other significant information. A study by [15] found that using new models and rendering techniques has made the auditing process better. And these ways not only make the information more correct, they also make it easier to fully understand

the complicated patterns that are in the data. With a better understanding, inspectors can find possible risks and strange things more easily, which helps people make better decisions. So, businesses can better use their resources and put in place plans that make their general operations more efficient. In turn, this enables auditors to make decisions that are better informed and to provide stakeholders a greater degree of trust. Finally, this paradigm allows auditors to make use of nontraditional sources of evidence, in addition to established ways, which has the consequence of creating benefits in both monitoring and control [16].

This comprehensive approach promotes a more transparent auditing environment, which eventually leads to an increased level of confidence between auditors and the companies they represent. By using innovative strategies, the profession is better equipped to make the necessary adjustments to the ever-changing landscape of financial responsibility. It has been used by major worldwide companies to evaluate non-financial data as well as enormous amounts of conventional data to satisfy the requirements of their customers [17]. These companies have made significant investments in FAI. The adoption of FAI raises several problems that require careful consideration. It is important to give these problems careful thought. According to the findings of [18], there are a lot of problems that need to be fixed. We need to take care of these problems. One of these problems is that there are not enough auditors. These auditors have not gotten the necessary training. Other challenges to overcome include concerns about the availability, relevance, and quality of the data. Additionally, regulators' and consumers' expectations of financial statements are increasing. The incorporation of "big data" sources that originate from outside the organization results in the development of an entirely new set of challenges for auditing standards. The incorporation of these sources has immediately resulted in the occurrence of these difficulties [19], say that this information is less reliable than audit evidence since it can't be verified and its source is questionable. They are aware of the situation that has come up [20] say that using flexible accounting information (FAI) in audits takes a lot more time than in other parts of company. This delay is due to the fact that auditors need to adapt to market demands for better predictive analysis while still meeting quality standards [21].

In addition, auditors are required to comply with the expectations of the market to improve their predictive analysis. A discernible movement toward greater use of data analytics in the field indicates a significant transition. This movement has emerged due to a significant transformation. Various factors, working together, are driving the development of this technology. This trend is influenced by several factors, including the application of this technology in risk-based auditing [22] its contribution to enhancing the efficiency of internal auditing [23], and the necessity to elevate audit quality and client value [24].

The introduction of new challenges indicates that the industry is moving towards a more uniform use of data analytics technologies. This is without a doubt the case. Furthermore, risk functions, which include perceived financial risk and perceived security risk, are also incorporated into the architecture. The Theory of Organizational Economics (TOE) model is the most important for this study because it lets us look at all the different factors that impact Saudi Arabia's acceptance of financial information (FAI). This method not only helps people learn more about how culture and tradition affect people, but it also helps them find issues that could make the plan harder to carry out. A theory called the Theory of Everything (TOE) may help people involved in the study find better ways to use and accept financial knowledge in this particular case. With this way, students can learn more about how businesses act and make choices based on cultural, economic, and legal factors. There are both bad and good things that happen when businesses try to join their accounting tools. You can use the TOE model to help you understand these things. Many different cultural, economic, and legal factors can have an impact on how people feel about AI technology.

Researchers may use this method to study these factors. Business can get more out of AI technology if they think about these things and make sure their plan works with the world around them. This all-around plan not only makes the business run more quickly, but it also makes it easier for people to come up with new ideas and be flexible. It is possible that the adoption of the TOE framework would result in the generation of significant insights that will be beneficial to both the policies and the practices in the sector. It is crucial to have an understanding of both the benefits that it provides and the issues that it solves in order to understand the factors that play a role in the adoption of Financial Access Infrastructure (FAI). The term "data analytics" refers to the methodical examination of an extensive array of unprocessed data, which is also known as "big data," according to [14].

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techniques [15]. Ultimately, this enables auditors to get value from nontraditional evidence sources in addition to standard ways, which results in improved monitoring and control [16]. This is a major breakthrough in the realm of auditing. The advantages might be significant. As a result of the fact that the audit process was able to discover any irregularities by examining the complete populations of transactions, the audit process became more effective and efficient [13]. It is simpler to maintain tabs on behaviors that are unethical and to provide clients more sophisticated services as a result of these advancements.

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There is a noticeable shift in the direction of increased data analytics use in the industry, which suggests a major change. This movement has emerged due to a significant transformation. Various factors, working together, are driving the development of this technology. This trend is influenced by several factors, including the application of this technology in risk-based auditing [22] its contribution to enhancing the efficiency of internal auditing [23], and the necessity to elevate audit quality and client value [24]. The introduction of new challenges indicates that the industry is moving towards a more uniform use of data analytics technologies. This is without a doubt the case.

Former members of the team responsible for the implementation of artificial intelligence The way in which financial institutions adopt artificial intelligence and the degree to which they do so are both dependent on a wide

range of criteria. Readiness of the Organization and Support Facilitation Initiatives: According to Keiningham, Ball, Moeller, and [25], fundamental aspects include the commitment of leadership, the preparation of staff, and the allocation of resources. To achieve the objective of adoption decision-making, it is essential to analyze perceived advantages in relation to assumed vulnerabilities. This part is called the balance between the perceived benefits and the real hazards that could be involved. In [3], together with Rose, Clark, Samouel, and Hair, did a research. The Consequences of Employing Artificial Intelligence in the Financial Sector Using artificial intelligence has been demonstrated to make financial reporting better by cutting down on mistakes and making sure that reports are sent in on time [26]. The use of predictive analytics and data-driven decision-making methods has been recommended as a strategy for enhancing the quality of choices made by individual decision makers, as reported by [27].

In addition, the concept of service excether (2022) as well as in the work of [28], llence is explored in the work of Montemayor, Halpem, and Fairwea They are of the opinion that it means having the capacity to provide financial services that are constantly available and are tailored to the needs of each individual, provided yet another definition. It has been suggested by [29]. that the outcomes may vary depending on the contextual factors that are present. These characteristics include the regulations, the organization's culture, and the consumers' trust in the business. There is a growing amount of literature on the topic, but there are not a lot of real studies that demonstrate a relationship between the elements that contribute to the usage of artificial intelligence and the quality of the outcomes that are seen in the banking industry, particularly in developing nations. The need of conducting specialized research studies that examine how factors like as organizational culture, technological preparedness, and legal frameworks influence the integration of artificial intelligence technologies is made evident by this gap. Researchers that are able to fill this gap in the research might provide legislators and banks with valuable information that could assist them in improving their company and services. This claim is especially true in countries where banks are still in the process of constructing their infrastructure. The aforementioned statement is especially true with regard to countries in which the financial system is still in the preliminary stages of its development. This phenomenon is particularly true in the case of financial institutions that are still in the process of developing their knowledge and abilities during the course of their operations.

A Perspective on Innovation: Businesses that place a higher priority on innovation are more likely to be more open to adopting new technologies in a more expedient manner. This trend is due to the fact that these businesses place a heightened emphasis on innovation. It is possible, however, that innovative inventions will often be met with resistance. This is a possibility. The year 2022 belongs to

Anand Reppel, Tarhini Ameen, and Ameen Reppel. - Vendor and Government Support: Vendors provide technical expertise, while governments set enabling frameworks [29,30]. Previous study often considers adoption as a conclusion, neglecting its subsequent impact on reporting, decision-making, and service quality[31]. In Saudi Arabia, this difference is particularly significant since the nation’s Vision 2030 is founded on the concept of change that is driven by artificial intelligence, despite the fact that research conducted at the university level remains restricted.

3 Framework for Research

3.1 Structural model

The structural model highlights the nature of the relationships between underlying variables. Suppose the random vectors

$$\eta^T = \eta_1, \eta_2, \eta_3, \dots, \eta_m, \tag{1}$$

and

$$\xi^T = \xi_1, \xi_2, \xi_3, \dots, \xi_n, \tag{2}$$

Internal and external variables, respectively, form a simultaneous equation within a system of linear relationships.

$$\eta = \beta\eta + \Gamma\xi + \varepsilon. \tag{3}$$

It is possible to reformulate the equations of the structural model and draw the following conclusion

$$\eta = (1 - \beta)^{-1} (\Gamma\xi + \varepsilon), \tag{4}$$

where

η : vector of endogenous variables of size $m \times 1$

ξ : vector of exogenous variables of size $n \times 1$

β : coefficient matrix of endogenous variables

Γ : exogenous variable coefficient matrix

ε : vector error in structural equation

The X pointer is denoted by the symbol x , while the Y pointer is denoted by the symbol y , and the measurement model equation can be formulated as follow

$$X = \Lambda_X \xi + \delta, \tag{5}$$

$$Y = \Lambda_Y \eta + \varepsilon, \tag{6}$$

X : indicator variable vector of exogenous variable

Y : indicator variable vector of endogenous variable

Λ_X : matrix for loading factor (λ) or coefficient that shows relationship between ξ and X

δ : vector of measurement model error for X

Λ_Y : matrix for loading factor (λ) or coefficient that shows relationship between η and Y

ε : vector of measurement model error for Y

Criteria Goodness of Fit

$$\chi^2 = (N - 1)F(S, \sum(\theta)), \tag{7}$$

$$GFI = 1 - \frac{F}{F_0}, \tag{8}$$

with F is the minimum value of the hypothesized model, F_0 is the minimum value of F when no model is hypothesized.

The GFI (Goodness of Fit Idices) value ranges from 0 (poor fit) to 1 (perfect fit), and the GFI value 0.90 is good fit, while $0.80 < GFI < 0.90$ is often referred to as marginal fit.

Root Mean Square Error Of Approximation (RMSEA)

$$RMSEA = \sqrt{\frac{F_0}{df}}, \tag{9}$$

Adjusted Goodnes Of Fit Index (AGFI)

$$AGFI = 1 - \frac{df_0}{df_h} (1 - GFI). \tag{10}$$

The ratio between Tucker-Lewis Index (TLI) and Non Normed Fit Index NNFI is given by

$$TLI = \frac{(\chi_i^2 / df_i) - (\chi_h^2 / df_h)}{(\chi_h^2 / df_i) - 1}, \tag{11}$$

χ_i^2 is the chi square of the null/independence model

χ_h^2 is the chi square of the hypothesized model

df_i is degree of freedom from null model.

df_h is degree of freedom from hypothesized model.

TLI value ranges from 0 to 1 with TLI value 0.90 indicating good fit and $0.80 < TLI < 0.90$ is marginal

Norm Fit Index (NFI)

$$NFI = \frac{\chi_i^2 - \chi_h^2}{\chi_i^2}. \tag{12}$$

Comparative Fit Index (CFI)

$$CFI = 1 - \frac{l_1}{l_2}. \tag{13}$$

Incremental (IFI)	Fit	Index
	$IFI = \frac{nF_i - nF_h}{nF_i - dF_h} \quad (14)$	

Relative Fit Index (RFI)

$$RFI = \frac{F_h / df_h}{F_i / df_i} \quad (15)$$

where F_h is the minimum value of F from the hypothetical model and F_i is the minimum value of F from null/independence.

According to prior study, banks mostly use artificial intelligence (AI) in order to improve customer satisfaction and make operations more efficient. They are able to do this via the use of creative apps as well as tactics like predictive analytics. Artificial intelligence is beneficial not only in the management of risks and the identification of fraud, but also in the contribution to economic stability. In any case, prior research indicates that issues including inadequate technological knowledge, privacy concerns, and legal issues hold down the adoption process. People at Islamic banks have to follow Shariah and do the correct thing, therefore not everything is perfect. Technology and the emergence of FinTech businesses are causing more significant changes in the way banks do business. One obvious component of these developments is AI. This also shows that these bigger changes are linked to AI. A lot of people worry about how jobs will change and if things will be fair. But technology is also making skilled and important new jobs possible. Another piece of proof that banks that have used AI have saved a lot of money and become more efficient is business reports. We can say that the way that practical and creative benefits, legal and moral requirements, and institutional trust all work together to shape how quickly and successfully adoption takes place is the model of IA adoption in banking. The point of this study is to help people understand what caused FAI, how it spread, and how it was thought to have made the makeup bank better. as shown in the table and figure

4 Approach

This research empirically examines the uptake of artificial intelligence in finance, its causes, and the perceived outcomes of the quality outcomes model in the banking industry. This study employed a purposive sampling approach. The survey technique was used to gather data from Saudi bank workers. A single employee database of a major operating and leading bank in Riyadh and Jeddah provided the sample frame. This particular group was chosen to be the target audience since the banking business provides a large selection of services. Throughout the time period that started in December of 2024 and concluded in July of 2025, a total of 270

surveys were sent, and 252 valid responses were obtained, which is similar to a response rate of 93.3 percent. The minimal sample size that is required for structural equation modeling (SEM) is less than the size of the sample that was used [32]. The respondents were chosen based on their experience and fundamental understanding of FAI as well as their practical application in the context of AI in the bank in Saudi Arabia. The banks are thus the perfect location for conducting employee surveys to learn more about the usage of artificial intelligence in the financial industry.

5 Results and Data Analysis

The data analysis was carried out in two distinct phases. SPSS version 26 was used in the first phase of the process to evaluate the data distribution, response rate, multicollinearity, and coding accuracy rates. Additionally, outliers and missing data were subjected to scrutiny and correction. Advanced analysis was performed using AMOS version 24 during the second step of the process. To analyze the measurement model, confirmatory factor analysis (CFA) was carried out. Subsequently, structural equation modeling (SEM) was used to test the hypotheses that were being investigated.

Indicator Reliability (Outer Loadings)

Indicator reliability of the measurement model is measured by examining the items' loadings. A measurement model is said to have satisfactory indicator reliability when each item's loading is at least 0.7 and significant at the level of 0.05.

Confirmatory Factor Analysis (CFA)

An exact match was found between the data collected and the model in this study, which was meant to see if the three-factor model was correct. A new method called Confirmatory Factor Analysis (CFA) made it possible to make this finding. It was found that there is a positive relationship between the Chi-Square and the degrees of freedom ratio (1890.148/987) after the study project was finished. Several statistical measures were used. After doing this, a number called 1.915 was found, which is less than the cutoff that was thought **about, 95** The threshold of three that has been established indicates that there is a significant degree of agreement between the model and the data. This conclusion is evidenced by the fact that the threshold has been set. The Comparative Fit Index (CFI) recorded a value of 0.901, which is greater than the threshold of 0.90 for a satisfactory model fit 96 . This indicator shows that the model can be trusted because it shows that the model accurately represents the facts. Even though the Tucker-Lewis Index (TLI) wasn't shown in a clear and concise way in the table, the model's success is favorable as a whole based on the other indices. The Standardized Root Mean Square Residual (SRMR) was found to be 0.070, which falls within the recommended threshold of ;0.08. This finding indicates



Fig. 1: Conceptual Study Model

Table 1: Hypotheses Summary

No.	Construct / Path	Hypothesis	Result	Direction
H1	Organizational Support → AI Adoption	H1	Supported	+
H2	Organizational Readiness → AI Adoption	H2	Supported	+
H3	Innovation Orientation → AI Adoption	H3	Supported	-
H4	Financial Information Quality → AI Adoption	H4	Not Supported	-
H5	Financial System Quality → AI Adoption	H5	Supported	-
H6	Perceived Benefits → AI Adoption	H6	Supported	+
H7	Vendor Support → AI Adoption	H7	Supported	-
H8	Government Support → AI Adoption	H8	Supported	+
H9	Financial Risks → AI Adoption	H9	Supported	-
H10	Security Risks → AI Adoption	H10	Not Supported	-
H11	AI Adoption → Reporting Quality	H11	Supported	+
H12	AI Adoption → Decision Quality	H12	Supported	+
H13	AI Adoption → Service Quality	H13	Supported	+

that the fit is satisfactory 97 . The Root Mean Square Error of Approximation (RMSEA) was 0.060, which is less than the allowed range of 0.06 . The PClose number was 0.000, which is much lower than the amount of 0.05 that was needed. In this case, the result was not very good, but it was still within a good range 99 .

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Reliability and Validity Testing Measures

Cronbach's coefficient alpha was calculated to evaluate the internal consistency and reliability of the scales. Every construct used met the acceptable criteria of Cronbach's alpha, and all of the constructs used in this study were not above 0.70 (see Table 1). The structural model reveals the same value of model fit shown in the figure; all the model fit indices for the structural model were not only significant but also remained the same as in the measurement model. The high index of R-squared (i.e., 0.65) justifies the underlying theoretical model.

6 Discussion

According to the findings of the research, most of the elements that have an influence on the adoption of artificial intelligence in the banking industry in Saudi Arabia have a significant effect. The only exception is the quality of financial information. The existing body of literature emphasizes the fundamental significance of organizational support, innovation orientation, and the participation of vendors and governmental entities in the promotion of the adoption of innovative technologies. This finding is consistent with this existing literature[33]. The research found that all of these aspects are primary components influencing the adoption of innovative technologies. This emphasizes the need of strengthening institutional infrastructure and of establishing policies that are favorable to digital transformation in order to accelerate the process. According to the results of the research, artificial intelligence is capable of improving the quality of service as well as the effectiveness of decision-making. As a result, past research has been

Table 2: Model Validity Measures

Construct	CR	AVE	MSV
Organizational_support	0.795	0.660	0.681
Innovation	0.836	0.718	0.958
Organizational_readiness	0.812	0.590	0.958
financial_information_quality	0.894	0.678	0.953
financial_system_Quality	0.891	0.622	0.970
perceived_benefits	0.906	0.727	0.970
Vendor_support	0.760	0.514	0.834
Government_Support	0.880	0.711	0.834
Perceived_security_risks	0.922	0.694	0.282
Adoption	0.792	0.454	0.859
Perceived_financial_risks	0.830	0.548	0.282
financial_services_quality	0.818	0.642	0.021
financial_decision_quality	0.865	0.762	0.101
financial_reporting_quality	0.810	0.579	0.859

validated that has highlighted artificial intelligence's potential to enhance the accuracy of forecasts and to facilitate data-driven decision-making [34,35]. On the other hand, the fact that very little emphasis is placed on the accuracy of financial information may be an indicator that the banks in Saudi Arabia have advanced systems for financial reporting. In turn, this could make this part of the decision-making process about adoption less important. Earlier studies found a link between using AI and better ways of reporting finances. However, this study's results don't support that link citeR26.

It's not just the quality of the data that affects how artificial intelligence is used in the banking sector. The organizational, cultural, and contextual characteristics are also among the large variety of other factors that are relevant.

Interpretation

CR: All constructs > 0.70 , indicating good internal consistency.

AVE: All constructs > 0.50 , except Adoption (AVE = 0.454).

Determinants of AI Finance Adoption

Organizational Support has a significant positive effect on AI adoption across all dimensions ($\beta = 0.893$, $p < 0.001$), the consequences are both considerable and beneficial. The banking sector needs institutional assistance in order to facilitate the use of artificial intelligence. The findings of the research indicate that companies who provide significant aid and resources are more likely to create an environment that is conducive to the integration of artificial intelligence technologies.

This may be the consequence of goals that are at odds with one another or the possibility that there will be a disruption. Banks could get better at their jobs and come up with new ideas because of this.

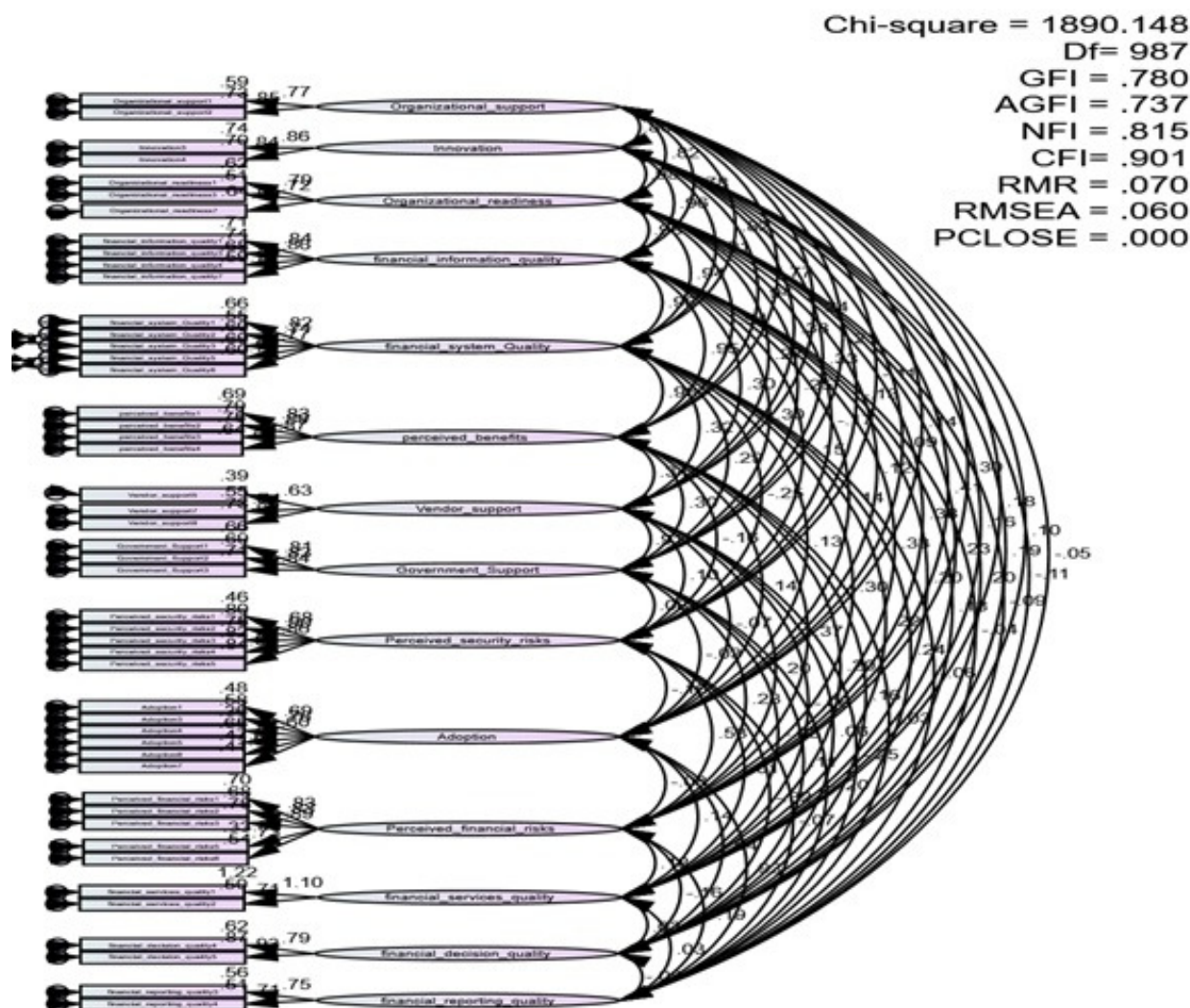


Fig. 2: Confirmatory Factor Analysis

Getting the group ready has a significant positive effect ($\beta = 7.243, p < 0.001$), indicating that groups and managers need to be prepared to act, as most of the time the process proceeded successfully. . The p-value is less than 0.001, and the creativity score is -9.122. It was clear that something bad took place. New ideas are great, but they can make things take longer to use. This is why businesses need to think of new ideas and help people put those ideas into action by building the tools and facilities they need. From what we saw, using AI in finance in this case might cause people to disagree or argue in ways that are new to them.

Financial Information Quality does not have a statistically significant effect ($\beta = 0.002, p = 0.998$). . The uptake does not seem to be influenced in any direct way by the quality of the data. In addition to being able to play a role in encouraging innovation, organizations must

also be mindful of the essential components that are required in order for implementation to be successful. This is the result that is obtained as a consequence of the following. To keep AI operations in the financial sector running smoothly, it is important to take a sensible approach that combines new ideas with honest business practices. This way, data quality issues won't get in the way of AI's total usefulness.

The trustworthiness of the financial system has a significant negative effect ($\beta = -4.855, p < 0.001$) Having a bad effect, which means that strong financial systems could be used instead, which makes people less likely to believe that AI is needed. We need to acquire new technology and make sure that the ones we currently have perform correctly. That's why. Companies need to be good with money in order to get the most out of their AI technologies. Perceived benefits have a significant

Table 3: Regression Weights: (Group number 1 - Default model)

Dependent Variable	Independent Variable	Estimate	S.E.	C.R.	P	Result
AI Finance Adoption	Organizational Support	0.893	0.176	5.082	***	Supported
AI Finance Adoption	Organizational Readiness	7.243	1.292	5.604	***	Supported
AI Finance Adoption	Innovation	-9.122	0.861	-10.600	***	Supported
AI Finance Adoption	Financial Information Quality	0.002	0.692	0.003	0.998	Not Supported
AI Finance Adoption	Financial System Quality	-4.855	0.393	-12.367	***	Supported
AI Finance Adoption	Perceived Benefits	6.187	0.458	13.521	***	Supported
AI Finance Adoption	Vendor Support	-4.160	0.428	-9.731	***	Supported
AI Finance Adoption	Government Support	3.907	0.400	9.770	***	Supported
AI Finance Adoption	Perceived Financial Risks	-0.351	0.100	-3.526	***	Supported
AI Finance Adoption	Perceived Security Risks	-0.031	0.125	-0.248	0.804	Not Supported
Financial Reporting Quality	AI Finance Adoption	0.974	0.019	52.034	***	Supported
Financial Decision Quality	AI Finance Adoption	0.661	0.071	9.331	***	Supported
Financial Services Quality	AI Finance Adoption	0.334	0.100	3.349	***	Supported

positive effect ($\beta = 6.187$, $p < 0.001$), indicating a substantial and positive impact. The main reason people use artificial intelligence is because it has clear benefits. Businesses that are aware of these benefits are more likely to spend money on training and merger, which will make them more successful in the long run. In addition to fostering innovation in a variety of different fields, this strategic plan also provides a competitive advantage.

- Vendor Support, which has a beta value of -4.160 and a p-value that is less than 0.001. As seen by the data, there is a significant adverse impact that is indicative of the fact that reliance on sources of support from outside may result in issues that block the process of implementation. The development of infrastructure, the augmentation of self-sufficiency, and the lessening of dependent on external contractors are all possible outcomes of prioritizing internal competencies. This makes it easier for enterprises to adjust to the technology environment, which is always changing.

Government support has a significant positive effect ($\beta = 3.907$, $p < 0.001$). The assistance given by the government and the benefits offered by the institution are two of the most important elements that motivate people to participate. Among the usual advantages that are available are access to research tools, financial resources, and legal arrangements that encourage innovation. Companies may find themselves in a position to succeed in a market that is becoming more and more difficult to compete in by making use of government initiatives. The following prediction exemplifies the adverse effects that financial concerns may have on a person ($\beta = -0.351$, $p < 0.001$), underscoring the significance of the impact. People who have dealt with financial risks before are less likely to feel thrilled about doing it again. This shows that it's important to have a good understanding of money and risk management in order to create an environment that encourages new ideas. One way to solve these problems and encourage the use of new technology is to put programs in place that teach people about money.

A p-value of 0.804 and a chi-squared value of -0.031 are used to figure out how likely it is that security breaches will happen. This number does not have much worth when it comes to the importance of numerical relevance. It does not seem that the pace at which new technologies are being adopted is affected in any way by the security vulnerabilities that exist inside our business.

During the course of the auditing process, businesses use big data analytics in order to identify trends, anomalies, and other information that is of importance. [15] assert that modern modeling and visualization approaches are seen as instruments that may enhance the auditing process. Ultimately, this enables auditors to use unusual sources of evidence alongside normal techniques, resulting in benefits for both monitoring and control [16].

The financial industry's use of artificial intelligence has a significant effect on the outcomes of financial transactions. ($\beta = 0.974$, $p < 0.001$) shows that the effect is both large and positive. The use of artificial intelligence has had the immediate impact of significantly enhancing the quality of financial reporting. In addition, it is also necessary for companies to take into consideration the possible ethical issues and prejudices that these systems could generate when they make use of artificial intelligence technology. It will be of the highest necessity to continually research and adjust artificial intelligence frameworks in order to guarantee that any breakthroughs that are made in the domain of financial reporting conform with both regulatory standards and best practices.

- The quality of the financial choices ($\beta = 0.661$, $p < 0.001$) Both facets are affected in a positive way by the consequences. The quality of financial decision-making is improved as a consequence of the use of artificial intelligence. This improvement might lead to the development of more accurate projections and strategic planning, which would, in turn, help to the building of a more robust financial environment. Organizations are becoming more skilled at handling uncertainty and are able to take full advantage of

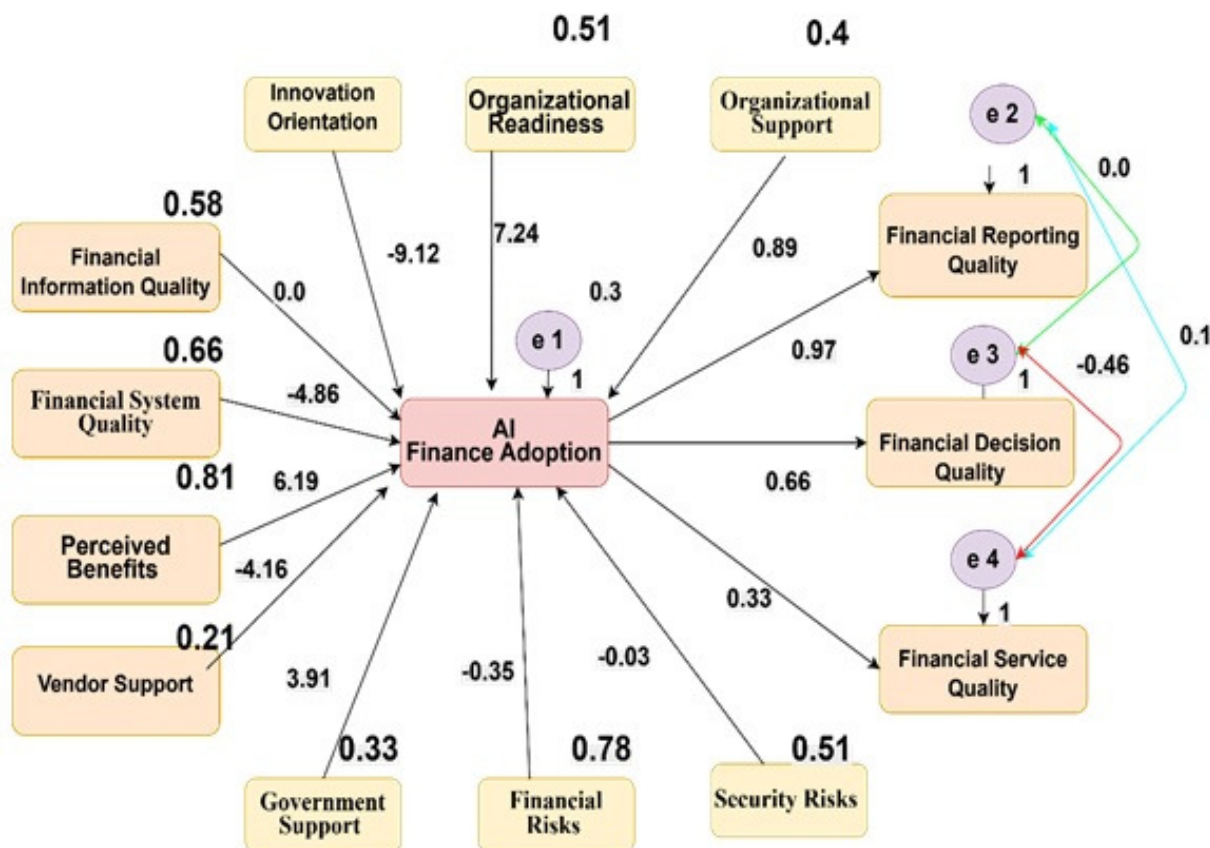


Fig. 3: Structural Model

the new possibilities that occur in a marketplace that is becoming more complicated.

The outcomes of the study suggest that the quality of financial services has a small positive effect on overall performance. This is shown by the β value of 0.334 and the p value of less than 0.001. In order to increase their efficiency and customer satisfaction, firms may use sophisticated algorithms and data analysis, which may subsequently enable them to boost their growth and profitability in their respective sectors. Although the use of artificial intelligence improves the quality of financial services, it does not improve the quality of reporting and decision-making to the same degree. This underscores the need of organizations to make investments in both technology and persons who have the ability to adapt to these changes. It will be crucial for maintaining a competitive edge in the future to remain on the forefront of technical breakthroughs as the sector continues to undergo upheaval

The indices of fit for the structural model were not identical to the value of the model fit that is presented in

the picture. The fit indices are in accord with those that were identified in the measurement model; yet, they are not in agreement with each other at a level that is considered significant.

An R-squared score of 0.65 is considered statistically significant and provides support for the validity of the underlying assumptions included in the theoretical model. This research has identified some critical criteria that might determine the acceptability of artificial intelligence in the banking sector in Saudi Arabia. The results of the research demonstrate that the use of artificial intelligence in the banking business is much improved when it is backed by organizational strategy and backing. According to the findings of a study, leadership that is both strong and effective is a critical component for the successful implementation of technical advances [39] (mention in 2022 that imagination has a considerable impact on the progression of digital transformation). On the other hand, there are individuals who are of the opinion that creativity is not an important component of digital transformation; yet, this research provides information that is in

opposition to this perspective. There are two elements that may make it more difficult to acquire consent, according to this study: the fact that there are conflicting purposes and the fact that individuals are habituated to traditional techniques.

7 Conclusion

This research investigates the use of AI in the banking industry from both an academic and a practical perspective. The main point is that it demonstrates how significant organizational and environmental elements are when it comes to determining whether or not to embrace anything. This category includes factors like support, preparedness, perceived advantages, and government incentives. In addition, it demonstrates how circumstances such as the attitude toward innovation and the soundness of the financial system might, under some circumstances, make adoption more difficult. Because they demonstrate that organizations need to be better prepared, innovation objectives need to be tied to activities using artificial intelligence, and legal and regulatory frameworks need to be built to encourage adoption, the findings are valuable for banking executives and politicians. The findings of the research indicate that the use of artificial intelligence has a favorable impact on a variety of financial outcomes, including the precision of reports, the rate at which choices are established, and the level of service provided. As a result, AI demonstrates the genuine advantages it has the potential to provide in terms of helping things operate more smoothly and giving superior client service. If you want to successfully use artificial intelligence in the banking sector, you need to have scientific knowledge, a beneficial company culture, effective risk management, and support from the government. They might be able to come up with better results if they looked at how using AI affected a country's long-term financial success and compared the outcomes of different countries.

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