ARTIFICIAL INTELLIGENCE AND ITS IMPACT ON DECISION-MAKING IN JORDANIAN BANKS (A FIELD STUDY IN AMMAN)

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I certify in my opinion that the thesis presented by Abdulazeez Abed HAMEED entitled "ARTIFICIAL INTELLIGENCE AND ITS IMPACT ON DECISION-MAKING IN JORDANIAN BANKS (A FIELD STUDY IN AMMAN)" is well suited in terms of scope and quality as a thesis for a Master of Science degree.

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FOREWORD

The first and most important thing I am grateful for is God who has blessed me with health and the ability to complete my education.

I would like to express my sincere appreciation to my supervisor Dr. Akram Al-HAMAD for dedicating his time and attention to me. It was the accumulation of information that made the greatest contribution to the completion of my thesis. This research is the result of his courage and help in the form of important advice and recommendations. Finally. I would like to express my gratitude to my supportive family, especially my father mother, brothers, for always being there for me. Helping me in my most difficult moments and also helping me with my studies.

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ABSTRACT

In the big data era, managers are exposed to an increasing amount of structured and unstructured information that they must process daily to make decisions. In this context, artificial intelligence (AI) functionalities can support managerial information processing, which forms the basis of managers' decision-making. To date, little is known about the themes that managers face when integrating AI into their IP and decision-making.

The study evaluated whether the use of Artificial Intelligence (AI), and Social Innovation in the banking sector serves as a useful tool in decision making for the Central Bank of Jordan (CBJ). This research used descriptive survey involving the administration of structured questionnaire on five-point likert scale to a sample size of 169 respondents purposively drawn from a total population of 315 managers of the Central Bank of Jordan. Cronbach Alpha Co-efficient (α) was used to test the reliability of the study instrument in which the instrument was found to be highly reliable given a Cronbach score of 0. 937 or 93%. A correlational design was used to test the relationships between the attributes of the dependent and independent variables using Pearson's Product Moment Correlation Co-efficient (r) to test the two hypotheses formulated. The results found a strong positive significant correlation between the use of Artificial Intelligence and Social Innovation in the decision-making of Jordan banks in Amman. The study recommends a holistic introduction of AI as a major service-delivery enabler by all banks in Jordan, which will enhance the quality of decision-making of the CBJ.

Keywords: Artificial Intelligence; Social Innovation; Banking; Decision Making

ÖZ

Büyük veri çağında yöneticiler, karar vermek için günlük olarak işlemeleri gereken artan miktarda yapılandırılmış ve yapılandırılmamış bilgiye maruz kalmaktadır. Bu bağlamda yapay zeka (AI) işlevleri, yöneticilerin karar vermelerinin temelini oluşturan yönetsel bilgi işlemeyi destekleyebilir. Bugüne kadar, yöneticilerin yapay zekayı IP'lerine ve karar alma süreçlerine entegre ederken karşılaştıkları temalar hakkında çok az şey biliniyor.

Çalışma, bankacılık sektöründe Yapay Zeka (AI) ve Sosyal İnovasyon kullanımının Ürdün Merkez Bankası (CBJ) için karar vermede yararlı bir araç olarak hizmet edip etmediğini değerlendirdi. Bu araştırma, Ürdün Merkez Bankası'nın toplam 315 yöneticisinden kasıtlı olarak seçilen 169 katılımcıdan oluşan bir örneklem büyüklüğüne beş puanlık likert ölçeğinde yapılandırılmış anket uygulanmasını içeren tanımlayıcı bir anket kullandı. Cronbach Alfa Katsayısı (α), Cronbach skorunun 0.937 veya %93 olması durumunda aracın oldukça güvenilir olduğu çalışma aracının güvenilirliğini test etmek için kullanıldı. Formüle edilen iki hipotezi test etmek için Pearson'un Ürün Moment Korelasyon Katsayısı (r) kullanılarak bağımlı ve bağımsız değişkenlerin nitelikleri arasındaki ilişkileri test etmek için korelasyonel bir tasarım kullanıldı. Sonuçlar, Amman'daki Ürdün bankalarının karar verme süreçlerinde Yapay Zeka ve Sosyal İnovasyon kullanımı arasında güçlü, pozitif ve anlamlı bir ilişki buldu. Çalışma, Ürdün'deki tüm bankalar tarafından CBJ'nin karar verme kalitesini artıracak büyük bir hizmet sunumu etkinleştirici olarak AI'nın bütünsel bir tanıtımını önermektedir.

Anahtar Kelimeler: Yapay Zeka; Sosyal İnovasyon; Bankacılık; Karar Verme

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SUBJECT OF THE RESEARCH

Artıfıcıal ıntellıgence and ıts ımpact on decısıon-makıng ın jordanıan banks (a fıeld study ın Amman).

PURPOSE AND IMPORTANCE OF THE RESEARCH

This study is viewed from two distinct, but complementary, perspectives: relevance to theory and relevance to practice.

The main methods for assessing service quality around artificial intelligence are social innovation. However, this research will not look at this concept affecting AI. Instead, you will focus on decision making. However, this study will focus on the Bank of managers and the banks registered in Jordan. And the (Relationship between artificial intelligence and decision making). In view of that, this study identifies the growing need for further research in this area and categorized the significance into practical, theoretical contributions.

METHOD OF THE RESEARCH

The previous chapter containing the literature review describes studies devoted to the influence of Artificial intelligence and social innovation on decision-making. More specifically, the variables examined in the framework of this research include (artificial intelligence, social innovation, and decision-making). This chapter presents the study methodology, and hypothesis development based on a literature review to clarify the influence between variables (independent and dependent variables). The questionnaire was used as a data collection tool to achieve the research objective. Besides, in this chapter an overview of study methodology, including sampling strategies, data collection methods, and analysis tools, will be.

HYPOTHESIS OF THE RESEARCH / RESEARCH PROBLEM

The study's concern is the fierce competition that Jordanian banks face both at home and overseas. As a result, these financial institutions should implement artificial

intelligence solutions, such as smart branches run entirely by robots and free of managers. In turn, this lowers bank operating costs, boosts market share, improves decision-making, and raises profit margins for the financial institution concerned. There are numerous technical and financial hurdles that impede banks from implementing RPA technology

POPULATION AND SAMPLE (IF AVAILABLE)

315 managers with decision-making authority were chosen as the sample size.

SCOPE AND LIMITATIONS / DIFFICULTIES

In order to make a decision, one must first consider all of the possibilities available to them before making a choice. Managers make decisions all the time, and the quality of those judgments has an impact on the bank's efficiency that can be quite considerable.

In the banking’s, the senior management team is responsible for making a number of crucial decisions, such as whether or not to use a new technology. While a bad decision can put a bank out of business, a good one can keep it afloat for a long time. Lower-level managers of the bank, though, can nevertheless have a significant impact on their department and its employees.

1. INTRODUCTION

1.1. Background of the Study

A common application of AI to the study of smart factor design dates back to the 1940s when it was first established as a field of study. Artificial intelligence has been applied to key choices in both public and commercial sector organisations such as the Central Bank of Jordan, the Jordan Securities, Jordan Stock Exchanges, and other organisations on a big scale. Making machines intelligent is a term used to characterise the science of artificial intelligence in decision-making (Borgios, 2018). Conceptualizing and interpreting the word AI in this way proposes a novel approach.

To deal with complicated administrative data information, a smart gadget becomes obvious because of the human tendency to make natural errors, neglect, and inability to overcome a big volume of data storage in its brain. To understand the limitations of human intelligence and capacities while dealing with vast and complex judgments, the creation of artificial intelligence is a crucial issue.

With the help of an AI-powered gadget, information can be gathered quickly and efficiently, which may be utilised to grasp concepts, policies or resources at a more rapid pace. To ensure that there are no data, the artificial intelligence tool that generated it also created and developed instruments to collect and provide trustworthy data, leading to a precise judgement (Alan, S, 1960).

In UKPATA, (2013), UTAM and ONWE (2012) stated that the decision can be characterised as a procedure that is picked out of a number of options based on some pre-determined rules or strategy. There are many possible courses of employment, but they cannot be pursued at the same time, according to this principle (Hisham, M. H. M. & Kamin, Y., 2018). Policymakers like the Central Bank of Jordan use decision making to select the best options from a variety of options (CBJ). He is responsible for the commercial operations of all financial institutions in his jurisdiction. Financial institutions in a country are required by law to submit political documents outlining how they will conduct their operations. Decisions made in this way immediately affect how the financial system functions (Allen, W. A., & Wood, G., 2006). In the long run, decisions are made experimentally and realistically, putting human resources at risk of

costly mistakes that could result in the depletion of both Resources, both human and material or possibly the failure of the project's timeliness or permanence. Since AI may already be used to make judgments in key economic and administrative processes, its emergence as a useful tool becomes critical (Duan, Y, Edwards, J. & Dwivedi, Y, 2019).

1.2. Problem Statement

Investment firms' evaluation criteria and the decision-making processes of investors have been the primary subject of decision-making studies (Hall & Hofer, 1993; Hisrich & Jankowicz, 1990; MacMillan et al., 1987; MacMillan et al., 1985) in the academic literature (MacMillan al., 1987; MacMillan et. al., 1985). (Tyebjee and Bruno, 1984; Betty and Gruber, 2011; Fried and Hisrich, 1994).

Researchers have had to rely more on qualitative than quantitative criteria due to the scarcity of investment datasets. Even while several research have shed light on the problems associated with this procedure (Franke et al., 2006; Shepherd and collaborators 2003; Zacharakis and Shepherd 2001; Zacharakis and Meyer 1998), very few have examined the potential remedies that might benefit investors in making sound choices. (Shepherd & Zacharakis, 2002; Zacharakis and Meyer, 2000; Khan, 1987).

AI and decision making in the banking business is the primary focus of this research. The third-largest benefit of AI is the ability to make better decisions (Briggs et al., 2018). Companies are planning to invest heavily in artificial intelligence (AI) (Briggs & Buchholz, 2019). Human and machine collaboration is the fundamental purpose of technology when it comes to reengineering corporate strategies, systems, procedures, and processes (Briggs & Buchholz, 2019). AI can help businesses and banks make better decisions, enhance productivity, and acquire insights from enormous data sets.

Artificial intelligence's potential in the banking sector has long been debated (Harris, 1992). Many researchers have concentrated on establishing quantitative techniques to valuing companies after determining the crucial need for a more data-driven approach to investing.

The banking industry in Jordan is characterised by fierce competition and rapid technological change. Banks that fail to keep up with technological advancements will not be able to compete in the market. Investing in current technology is critical to ensuring that financial services will continue to be available in the future, and scientific research supports this conclusion (World Bank., 2018).

When it comes to providing financial services, decision support systems and information and communication technologies (ICT) have become an increasingly important enabler. The rapid digital transformation of financial markets worldwide has necessitated a rethink of financial institutions' general philosophy. Customers will benefit from more effective and fast banking services. For the CBJ, this means rethinking how AI is used in policymaking, which has ramifications for how well it oversees banks and the overall quality of financial supervision (Demirkan, H., & Delen, D., 2013). AI algorithms are being used by a growing number of businesses around the world to collect vast amounts of data (Lee, J., Singh, J., & Azamfar, M., 2019). An investigation by Tata Consultancy Services (TCS) has discovered that the investment in artificial intelligence (AI) has helped to lower production costs. In order to meet the objectives, the usual decision system structure is illustrated in the figure, and this study addresses the issue of efficiency in the data gathering method. Secondly, the length of time it takes to receive important data from banks in order to lead the creation of appropriate manager protection policies, and thirdly, the lack of reliability of the data integrity report provided by banks.

The study's concern is the fierce competition that Jordanian banks face both at home and overseas. As a result, these financial institutions should implement artificial intelligence solutions, such as smart branches run entirely by robots and free of managers. In turn, this lowers bank operating costs, boosts market share, improves decision-making, and raises profit margins for the financial institution concerned. There are numerous technical and financial hurdles that impede banks from implementing RPA technology (Stehniei, O. (2021).

1.3. Research Questions

The research questions were formulated from the above-mentioned problem data on managerial decision-making, the following research questions were developed.

1. What are obstacles facing the application of artificial intelligence in Jordanian banks?
2. What is the influence of artificial intelligence in Decision Making in Jordanian banks?
3. What is the influence of Social Innovation in Decision Making in Jordanian banks?

1.4. Research Objectives

The research objectives are formulated based on the above-mentioned problem statements on the factors that could enhance the manager's decision making:

1. To identify the obstacles facing the application of artificial intelligence in Jordanian banks.
2. To determine the influence of artificial intelligence in decision making in Jordanian banks.
3. To determine the influence of social innovation in decision making in Jordanian banks

1.5. Study Signification

This study is viewed from two distinct, but complementary, perspectives: relevance to theory and relevance to practice.

The main methods for assessing service quality around artificial intelligence are social innovation. However, this research will not look at this concept affecting AI. Instead, you will focus on decision making. However, this study will focus on the Bank of managers and the banks registered in Jordan. And the (Relationship between artificial intelligence and decision making). In view of that, this study identifies the growing need for further research in this area and categorized the significance into practical, theoretical contributions.

1.5.1. Significance to Theory

This study deals with a framework related to the (Relationship between artificial intelligence and decision-making (social innovation) and its influence on decision-making). This study contributes to presenting a study on Jordanian banks. Also, in the influence of artificial intelligence on decision-making in Jordanian banks.

1.5.2. Significance to Practice

The study used data from surveys and studies to elicit ways in which AI and social innovation can affect our decision-making ability. The resulting framework can be used by practitioners to help develop decision-making strategies for managers in the management of banks.

1.6. Research Scope

In order to make a decision, one must first consider all of the possibilities available to them before making a choice. Managers make decisions all the time, and the quality of those judgments has an impact on the bank's efficiency that can be quite considerable.

In the banking’s, the senior management team is responsible for making a number of crucial decisions, such as whether or not to use a new technology. While a bad decision can put a bank out of business, a good one can keep it afloat for a long time. Lower-level managers of the bank, though, can nevertheless have a significant impact on their department and its employees.

Financial institutions such as banks play a critical role in the overall economy of a country. On the other hand, the banking construction business is thriving. Applied artificial intelligence and social innovation for decision-making, as seen through the eyes of practitioners, banks, and other organisations with a focus on academic development. The focus of this thesis is on banks since past research shows that managers in big institutions are more likely to employ artificial intelligence and social innovation to influence their decision-making than managers in midsize or budget banks (Kim & Cha, 2002). Literatures from the past have revealed A little amount of

scholarly research has concentrated on the many and specific elements of banks (Hoehle, H., Scornavacca, E., & Huff, S, 2012).

However, few studies have examined the impact of artificial intelligence and social innovation on banking sector decision-making in more detail (Kim & Cha, 2002). Bank managers' decision-making was examined through the use of variable fragmentation and limited geographical scope (Kim, W. G., & Cha, Y., 2002). An important contribution to academic understanding is made by this thesis, which adds to existing theories and practises in the fields of decision-making and AI. As a result, the model's empirical investigation of the link between its derived components' relationship quality (Artificial intelligence and social innovation) and decision-making, applied to Jordanian bank managers, adds to existing theories of social innovation, decision-making, and AI theory. Unlike prior studies, this one incorporates a wide range of variables and covers a wide geographic area.

While conducting this research, it was important to consider the perspectives of bank managers, who are known for their particular preferences when it comes to banking, such as a peaceful view surrounding the bank and the cleanliness of the bank's interior as well as their interest in unique salaries and services that may not be found at other institutions. Even if these features aren't considered conventional in the banking industry, they're critical in the process of making decisions (Tufféry, 2011).

As a result, this study focuses primarily on the decision-making processes of banks in Jordan, as well. Furthermore, this area can be brought into the light and to the benefit of bank managers and the banking industry in Jordan as a whole.

1.7. Key Terms Definition

1. **Artificial intelligence:** Since computer science is a sub-subject of artificial intelligence, it is possible to create hardware and software capable of operating and interacting like people. This has transformed the information technology area (Kamble & Shah, 2018). One of the most often used names for a branch of computer science that tries to give machines the ability to reason, plan, learn, think and make decisions. An artificial intelligence system can be defined as "any sort of living intellect" despite the fact that this definition focuses on

machines. Consequently, the concept of AI can be extended to include a wide range of varied and interrelated skills that are all connected (Kitsios & Kamariotou, 2021). Strategic AI is progressing at a rapid speed, forcing companies to restructure their business models and operations in order to keep up, but the long-term effects of this trend are still largely unknown (Diener & Spacek, 2021).

2. **Decision Making:** Being a manager entails a great deal of decision-making. A manager's decision quality is critical for two primary reasons. When a manager's decisions directly impact his or her career, rewards, and job happiness, it's important to keep this in mind. Second, managerial choices have an impact on a company's success or failure. According to the authors (Kreitner and Kinicki 2004). The phrase, decision-making, refers to the process of recognising, and then selecting, the best course of action in order to achieve a goal. A issue is the starting point of the process, and it concludes with a decision on a solution. To better understand how managers may make better judgments, we will focus on (1) the dynamics of decision making, (2) good decision making, and (3) innovation in decision-making in our theoretical framework.

3. **Social Innovations:** Although the concept of social entrepreneurship has been around since the late 1990s, the first examples date back more than a century (Dart, 2004). According to research by Dart (2004), many social enterprises have adopted hybrid structures that combine non-profit endeavours with for-profit endeavours. As a result, these businesses are customer and revenue centric in nature and run like a business. Therefore, for-profit companies, non-profit organizations or a combination of the two may take the lead in the process of social innovation. According to Dart (2004), 'social enterprises' are increasingly defined and implemented in terms of purely financial and profit maximization. According to Chell et al. (2005), for these organizations to be sustainable, they need to engage in an economic activity that creates value for social goals and wealth to fund future investments and operations. This calls for entrepreneurial leadership to identify and seize possibilities. The primary goals are still mostly social and not for profit (Shaw & Carter, 2007).

1.8. Thesis Organization

Chapter 2: This chapter discusses the research methods and findings of various scholars and researchers. This document includes not only their definitions, interpretations, and arguments, but also the results of their thorough investigation. The researcher also makes hypotheses about how certain contextual conditions can have a role in illuminating the issue at hand. The conceptual model and its guiding hypothesis are depicted in the research's overall conceptual framework.

Chapter 3: This chapter describes how the whole data gathering procedure was conceptualized and planned. The research strategy and methods that served as the parameters for the study's course are described in detail in this section. The researcher also described the sampling procedure that was used to pick the responders, as well as the sample that comprised the study's participants. Additionally, the researcher stated how they planned to gather the data as well as the equipment that would be utilized to do this task.

Chapter 4: Descriptive statistics for demographic section, regression model, correlation test, normality test, and measurement of important and relevant customer answers were used to achieve the main objective of this study, which is described in this chapter. Furthermore, based on the exciting results, we recommend similar studies.

Chapter 5: It is in this chapter that you will find all the discussions on conclusions and findings of research analyses, as well as any recommendations and suggestions that the researcher has presented. As such, the first section of this chapter contains the desired results that will help you achieve your research goal. After that, we concentrated on ideas and proposals that may contribute to the improvement of financial services and the advancement of research in the future.

2. LITERATURE REVIEW

2.1. Introduction

The goal of this study is to find out what is going on elements that have an impact on the decisions that are made within the banking business. The literature that is pertinent to the topic, such as the impact that artificial intelligence and social innovation have had, is the primary emphasis of this chapter. Together, they make up one part, and that section comprises artificial intelligence and social innovation, both of which are independent variables. The dependent variables are also included in this section (decision-making). This chapter analyses and discusses topics that are directly relevant to the decision-making process in the banking business. In a broad sense, this chapter delves into the topics of artificial intelligence as well as social innovation and decision-making.

2.2. The Central Bank of Jordan (The Establishment)

2.2.1. Pre-Currency Board Phase

Financial transactions throughout the Ottoman Empire relied on the Ottoman lira because of the absence of any banking organizations or other structures that could issue, protect and regulate currency. This practise lasted until the First World War, when the Emirate of Transjordan came into existence. This was on top of the Egyptian banknotes and a few other currencies. Before the Transjordanian Emirate was founded.

British authority over the region began with the usage of golden English pounds alongside Egyptian pounds following the end of World War One. As long as this practise lasted Britain's Palestine Currency Board existed until 1927 and was responsible for bringing all currencies in Palestine and the eastern Jordanian region under a single umbrella. This was done so that trade could take place more easily.

Palestinian Pounds became lawful currency on April 1, 1928, after a vote by the board of trustees to do so. Eastern Jordan and Palestine's monetary issues were handled by the board's London headquarters during that time period.

Its profits were also divided between the two regions based on the total amount of money in circulation in each region. Copper and nickel coins with Arabic and English inscriptions in the denominations of 1, 2, 5, 20, 50, and 100 mils were also produced during this period. Many other currencies were used for day-to-day transactions and transactions involving products and services in the eastern Jordan region, even though the Palestinian pound was recognised as the legal tender there. In order to replace the Jordanian Currency Board exchanged the Palestinian Pound for the Jordanian Dinar. founded in 1950. Nothing has changed since then.

During this time, the banking sector was subject to a variety of regulations. There were only two banks at that time, and both of them had two branches in Amman: There was the Ottoman Bank, which started operations in 1925, and the Arab Bank, which had its start in Palestine in 1930 and eventually established a base in Amman. In 1943, the group traveled to Irbid. They simultaneously launched locations in Amman and Irbid. By 1951's end, the Emirate of Transjordan was supplied by four commercial banks, each with a network of five branches.

It was not unusual for banks to have branches in the Middle East during this time period, including the Egyptian and Ottoman banks. As of this moment, Arab Bank was one of just four financial institutions to have reached this significant milestone (Central Bank of Jordan, 2017).

According to a 1925 agreement struck between the Ottoman Bank and the administration of the eastern Jordanian province, the Ottoman Bank also served as a government bank. After the Kingdom of Jordan's finances grew and new banks were established, this agreement was superseded by a new one in 1952. Transjordan Emirate's Ottoman Bank is regarded as the region's oldest bank. Ottoman Bank received sole rights to conduct banking activities on behalf of the government and to manage all funds in its possession under the provisions of the agreement. Ottoman Bank served as Jordan's government bank until 1968, Since the CBJ's inception, all of the responsibilities of the Jordanian Central Bank have been CBJ's (Bank of Jordan, 2017).

2.2.2. Jordan Currency Board 1950-1964

In 1946, the Emirate of Transjordan declared itself an independent state, giving rise to the notion of producing its own currency. When Law No. 35 and Law 533 were issued in 1949, the Jordan Currency Board was founded as sole authority in Jordan to produce banknotes and coins. Issue of a national currency was also considered at this time. floated. A gradual transition began on July 1, 1950, when the Jordanian Dinar replaced the Palestinian Pound as Jordan's currency. The use of the Palestinian pound as currency was abolished on September 30, 1950. In those days, one Palestinian pound was equal to one Jordanian dinar. According to the law, the Currency Board was obligated to maintain a reserve of sterling pounds and bonds equal to one hundred percent of the entire quantity of money in circulation. Since Jordan joined the Sterling Currency Area at the start of the 1950s, bondholders were able to make interest and principal payments in British pounds at the Breakeven Price. The bonds' provisions allowed for this to happen. (Haddad, A. K., 1979).

It was in 1950 that the Cabinet decided that London would be the permanent home of the Monetary Board. There were five members of the council back then. The Council of Ministers decided on a three-year term for them. The Chairman was the only person on the Board of Directors who did not hold dual citizenship; two other members were both Jordanian and British. The Ottoman Bank represented the Jordan Monetary Board everywhere in the country save from the capital city of Irbid. The Arab Bank ruled over Irbid. The Ottoman Bank worked to fulfill the Kingdom's need for paper currency by issuing new bills on its behalf. Increasing Jordan's monetary independence was one goal of the Board of Governors when it relocated its headquarters to the capital city of Amman in 1957. There was a vote cast before settling on this course of action. Finance Minister Ahmad Al-Tarawneh of Jordan, along with private sector representatives Abdel Al-Hamid Shoman, Haidar Shukri, and Sulaiman Al-Sukkar, were elected to the board, and a representative from the Bank of England was appointed to serve as vice chair, bringing the total number of board members to five (MR. C.E Loombe). After its first meeting in Amman in 1957, the Board of Governors decided to set up a London branch to manage administrative matters. The duties of the position included printing currency, minting coins, and transporting goods. The investment committee oversaw a sterling asset reserve to

protect the value of the Jordanian dinar (Moh'd AL-Tamimi, K. A., M. Jaradat, and A. M. Al-Rjoub, 2019). The Council of Governors.

2.2.3. The Establishment of the Central Bank of Jordan

Indeed, it was not until a 1957 report from a World Bank team suggested Jordan set up its own central bank. Since no economic or banking mechanisms existed to facilitate this shift, the mission concluded that the Currency Board should gradually enhance its duties. intending to one day perform central bank duties (Harrigan, J., El-Said, H., & Wang, C., 2006).

Accordingly, As a result, the Jordanian government concluded that a separate Central Bank was required., despite advice from an international delegation. As a result, in 1959, the Jordanian government passed the first Central Bank law, laying the groundwork for the institution's creation. Along with the Central Bank Law, the state legislature also enacted two other key pieces of legislation. these two pieces of legislation were passed in 1959, one dealing with bank supervision, and another dealing with foreign currency supervision These two pieces of legislation were enacted at the same time as the Central Bank Act of 1999. The Banking Supervision Law of 1959 required the Central Bank to oversee all banks doing business in the Kingdom. In response to the Foreign Currency Control Law of 1959, a separate agency charged with monitoring currency transactions was set up (Harrigan, J., El-Said, H., & Wang, C., 2006).

On September 8th, 1963, the Cabinet made the decision to create a central bank with its own legal identity, headquartered in Amman, with the power to operate branches and representative offices, the authority to specify its goals and the means by which it intends to achieve them, and a comprehensive set of rules governing the bank's top management. Keep in mind that this decision was made in accordance with the Bank's guidelines for senior management. On September 16, 1963, it was announced that Dr. Khalil Al-appointment Salem would serve as the first Governor of Jordan's Central Bank. This appointment was later confirmed by Royal Decree. Abed Al-Kareem Al-Hmood was also selected to serve as the governor's deputy for a three-year tenure. In a unanimous vote, both gatherings will take place at the same time. To ensure the most uniform approach to designing and implementing Bank of Japan

policy, the Cabinet selected each of them for varied terms. In other words: (Carroll, K. B., 2003).

With respect to this matter, the Currency Board has approved the required measures to begin putting the aforementioned Law into practise Preparation of a new bank facility in Jordan is among these steps; a new currency board in London is also being transferred to the central bank in Amman, Moreover, Ottoman Bank bank accounts have been closed and the transfer of funds from those accounts to Amman's Central Bank. Aside from that, the investment's termination

When it originally opened its doors for business on October 1, 1964, the Central Bank of Jordan processed a mere handful of transactions. As full coverage for the currency in circulation the day before, the Currency Board transferred assets in London worth $25,055,032 in Sterling Pounds to the Central Bank of Jordan on this date, which were then transferred to accounts at the Jordanian Currency Central Bank and became liabilities, and the Currency Board transferred assets in excess of 650 thousand dinars to the Jordanian Currency Central Bank on the same date (Weidner, Jan, 2017). Also, one million Jordanian Dinars were put into the Central Bank's capital account in accordance with Article VII of the Central Bank Law. Additionally, the Central Bank assumed responsibility for the duties of the Treasury Department. The Central Bank of Jordan now officially controls Jordan's currency as required by law (CBJ) (Central Bank of Jordan, 2017).

On August 4, 1965, the Central Bank of Jordan began gradually deleting banknotes issued by the Jordan Currency Board from circulation. They were officially decommissioned and removed from circulation on June 30, 1966. The Central Bank's logo and name appeared on freshly printed bills for the first time. New coin designs featuring the late King Hussein Bin Talal were introduced in 1966, though. Coins issued by the Currency Board were still legal tender at this period. Jordan has its own central bank.

2.2.4. Financial and Banking Challenges and The Role of the Central Bank of Jordan

Increased efficiency in resource allocation across different economic sectors is viewed as a fundamental condition for economic growth due to the benefits of financial transactions. Aside from these considerations, banking systems play an important role in national money distribution since the capital market is so volatile (Chiwira, O., Bakwena, M, Mupimpila, C, & Tlhalefang, J, 2016). Consequently, the Central Bank of Japan (CBJ) ramped up measures to ensure the banking system's soundness and to increase its efficiency on both the qualitative and quantitative levels, in light of this situation. A similar policy has been implemented in other nations to protect the interests of depositors and shareholders. Due to political and economic climates, the Central Bank of Japan (CBJ) faced a variety of challenges in monitoring and controlling the banking system's operations. Inadequacies in financial and banking institutions' management and banking procedures have had a negative impact on the banking system, leading to the liquidation of numerous financial institutions (Central Bank of Jordan, 2017).

Depositor rights and national economic stability were top priorities for the Central Bank of Japan (CBJ) during these financial crises. The CBJ took the required steps and activities to attain these objectives, including dismissing the boards of directors of banks that failed to meet their fundamental objectives. Additional efforts were made to reimburse depositors for their losses by the Central Bank of Japan (CBJ). The following is a list of the most severe financial and banking crises to hit Japan, and the role the CBJ played in responding to them:

Intra Bank: Due to the fact that the bank's Lebanon headquarters halted in the middle of June 1966 as a means of satisfying its customers, the 1966 intra-bank crisis is considered an imported problem. CBJ had only been around for two years, and this was a major problem for them because of that. Bank of Jordan (CBJ) was charged with protecting depositors in Jordanian Intrabank branches as well as minimizing the impact of the crisis on the banking sector. Here is a list of CBJ's most notable initiatives: On October 15, 1966, a final order was issued to close all intra-bank branches. At the same time, a committee made up of bank employees and bank executives was formed to keep an eye on the bank's remaining branches and their assets and liabilities.

Depositors at the bank were paid a sum of JD 100 each on October 20, 1966, after the Central Bank of Japan (CBJ) conducted a thorough review of the bank's assets and liabilities. Following this decision, 55 percent of depositors withdrew their money, which was less than JD 100. Approximately 70 percent of the total deposits have been withdrawn. In the meantime, the CBJ continued to collect the debt it had accrued until it had collected around 65% of the total debt. Negotiations between the CBJ and the necessary parties in Lebanon to resume operations at the branches have continued in this context. Intra bank's new management decided to release the Jordanian deposit at the beginning of 1968. branches kept in London. In addition, JD 50.0 thousand was transferred to raise Intra Bank Jordan's capital and another JD 50.0 thousand was sent to offset losses suffered by operating branches. Banks were finally able to open again on March 14, 1968, thanks to the bank's new management team's ability to pay their financial obligations. Al-Mashreq bank was created and renamed the next year in 1972, despite the bank's demise in 1971. (Central Bank of Jordan, 2017).

Al-Mashreq Bank : In 1987, representatives from the Al-Mashreq Bank and the Jordanian Finance House corporation applied to the Central Bank of Jordan (CBJ) for approval to consolidate their respective branch networks. The CBJ supported the merger in principle but placed conditions on its completion. Due to findings from a probe into the conduct of former Al-Mashreq Bank management in Lebanon, the merger was scrapped. Here, regional management made a bad decision and unlawfully spent money from the Jordanian branches. The bank's worsening financial condition meant that it could no longer satisfy the CBJ's reserve ratio standards. According to a notice sent by the bank to the Central Bank of Japan on January 11th, 1990, the institution was on the verge of closing its branches due to a lack of business. To remedy the situation at its Jordanian branches, the Central Bank of Jordan (CBJ) reached out to a bank in Lebanon for help. The Lebanon bank agreed to provide the CBJ with the liquidity it needed and help it formulate a strategy to avoid collapse. However, the management of the bank has not publicly disclosed any strategies for saving its branches in Jordan. Under the authority of article (46) of the CBJ statutes and paragraph (D) of article (23) of the Companies Law, a committee was established on October 25, 1989, to temporarily oversee the work of the bank's branches. The Economic Security Committee formed a committee on June 13, 1991, to oversee the Jordanian branches of the Al-Mashreq bank. As a further measure, CBJ put JD

4,000,000 in the largest bank in the Middle East, Jordan's Al-Mashreq Bank. This deposit, which is due on August 20th, 1992, will earn 3% interest per year thanks to a decision by the committee overseeing Al-management Mashreq that was formed on July 18th, 1991 after Decision No. 9/91 was made by the Economic Security Committee to separate the bank's branches in Lebanon from the bank's main headquarters. This ruling was made possible by ESIC Ruling No. (9/91). The committee continued to have control over the day-to-day operations of the bank. As of its 1993 merger with Jordan-Gulf Bank, the Al-Mashreq bank no longer exists under the law (Central Bank of Jordan, 2017).

Jordan-Gulf Bank : Third, we have the Bank of Jordan Gulf. The Jordan-Gulf Bank (JGB) was founded on December 14, 1976 with initial capital of JD 5.0 million from the Central Bank of Jordan (CBJ), with the condition that Jordanians would hold a majority ownership in the JGB. You should always aim for a success rate of at least 60%. Therefore, the bank is taken into account during talks on enhancing ties between Jordan and the GCC. Beginning operations in March 1978 with a paid-in capital of JD 4.1 million and an offering and underwriting of nearly half of the bank's shares on May 3, 1977, a public holding company was formed. The bank turned a profit up until 1983, when non-performing loans began to pile up, eventually leading to real losses of more than JD 30.0 million in 1989 (almost three times its owners' equity). Bank had to declare insolvency and seek bankruptcy protection in August of 1989 per CBJ regulations. In order to restructure the banks' capital, increase their liquidity, and strengthen their ability to make new investment choices, the CBJ decided to combine Jordan-Gulf Bank and Petra Bank. Therefore, on August 3, 1989, the Economic Security Committee disbanded the boards of directors of both banks and created a committee to manage them. Because of this, on July 10, 1990, the Economic Security Committee chose new management to reorganize Jordan-Gulf Bank's finances. This followed the Committee's decision to treat Jordan-Gulf Bank and Gulf Bank independently. With the help of a group of investors, Jordan-Gulf Bank was restructured in 1993. Jordan-Gulf Bank and Al-Mashreq Bank were supposed to merge if the committee in charge of Al-Mashreq Bank and the CBJ both gave their consent. Performance at the bank improved after this agreement was put into place, but it relapsed between 2002 and 2004 due to poor management and the CBJ's lack of commitment to the corrective actions. New capitalization and debt reduction

legislation necessitated a reorganization of the bank, which CBJ carried out in the second half of 2004. The bank rebranded as Jordan Commercial Bank after receiving a capital infusion of JD 40.0 million and changing its name (Central Bank of Jordan, 2017).

Syrian Jordan Bank: The Syrian Jordan Bank was established in Amman as a consequence of cooperative efforts between the Syrian and Jordanian governments. The bank established a single location in Amman, Jordan, in the mid-1980s. The principal goals of establishing this bank were to promote economic cooperation between the two nations, ease the flow of goods and services between them, and fund joint development projects. Due to a multitude of obstacles, the bank was unable to build a second location in Damascus until late 1982. After observing these signals, the Economic Security Committee severed links with the bank's Syrian equivalent on August 31, 1982, and revoked the articles of contract creation. After the Economic Security Committee accepted the bank's balance report and revenue statement for the period ending August 31, 1982 on January 17, 1984, the Syrian stakeholder was reimbursed for their equity interest, and the Jordanian stakeholder was handed control of the bank going forward. The financial institution transitioned into a commercial bank. Another attempt was made to address the bank's financial status when, on August 23rd, 1989, the Economic Security Committee agreed to create a temporary committee to manage the bank. Similarly to the advantages enjoyed by the general assemblies of public shareholder enterprises, this committee has such rights as well. In the end, the Economic Security Committee concluded on May 11th, 1991, that the bank should be liquidated, and designated the CBJ as the liquidator, as a result. The decision involves the transfer of bank liabilities to the Jordan-Gulf bank on the condition that the CBJ would refund any funds that are paid by the Jordan-Gulf bank to depositors of the Syrian-Jordan bank. These transferred money are declared an obligation to the CBJ on the Syrian-Jordan bank.

Islamic Investment House Company: The Islamic Investment House Firm was established as a publicly listed, shareholder-accessible company before the end of 1981. Since its inception as an Islamic financial institution in 1982, the company has been committed to upholding the highest ethical standards. The firm's inability to pay its expenses was brought to a head when CBJ's investigation uncovered a history of malfeasance and financial troubles. The issue prevented the firm from meeting its

commitments. On September 7, 1986, the Economic Security Committee voted to abolish the board of directors and create a committee to conduct financial reforms. Investors' interests required this choice to be made. The committee found that the corporation had sufficient cash on hand, but that it was having issues with its assets and investment portfolio. The necessary reports were written and disseminated to those who needed to see them. They ultimately decided to forward the complaint to the Military Attorney General, who quickly formed an investigative team to look into the company's practices. The inquiry and audit revealed losses for the company that exceeded the worth of the owner's equity stake. The Economic Security Committee deliberated for two years before voting on a set of measures to improve the company's financial stability on March 16, 1989. As a direct result, the National Islamic Bank, an Islamic financial institution worth seven million Dirhams, was established. Due to the bank's assumption of all of the Investment House Company's property and obligations, the bank is recognized as the Islamic Investment House Company's legal successor in accordance with Islamic Sharia law. CBJ has agreed to provide a refundable advance to help make up for the company's losses. Banks in Jordan have instituted withdrawal restrictions to protect customer cash and prevent system disruptions. Liquidation proceedings for the bank were initiated on February 28, 1991, when the Economic Security Committee voted to remove the bank's license and appointed the CBJ as liquidator.

Islamic National Bank: After the inability of the Islamic Investment House business to satisfy its financial obligations, the Islamic National Bank was established to fill the void. The Islamic Investment House company began regular operations in 1990, making it the seventh year of operation for the Islamic Financial Group. Due to the nature of the company's investment activity and the transgressions of the board of directors, the Islamic Investment House had a severe liquidity difficulty. The corporation's own investments caused this disaster. Based on its analysis of financial data, the Economic Security Committee proposed an arrangement plan to amortise the company's loss and re-capitalize the bank's capital on September 7th, 1988. The plan was formulated after analyzing the company's financial data. Similarly, the new firm that was set up to take the position of Islamic Investment House ensured the security of Islamic Investment House's clientele. The Jordanian Central Bank (CBJ) extended a loan of 7 million dinars to the organization for the express purpose of achieving these

aims. In 1986, the Islamic Investment House was allocated $3 million dinars of this total. The bank abruptly ceased its normal commercial and operational activities soon after starting. The bank's board of directors determined that it was in everyone's best interest to shut down on May 1, 1990. Due to these and other factors, the Economic Security Committee decided on February 28th, 1991, to revoke the bank's charter and suspend its operational authority. Therefore, the bank was forced to enter liquidation with the CBJ as the appointed liquidator. This decision is appropriate since the bank did not consistently carry out banking activities in accordance with the regulations.

Capital and Credit House : Capital and Credit House was established as a specialized brokerage investment business in late 1982 with a seed capital of six million JD. There was a clause in the contract that said the firm couldn't take deposits unless and until it had the CBJ's stamp of approval. Furthermore, the name "bank" could not be used in any official corporate records, titles, or business activities. Credit and investment policies instituted by firm management in 1986 led to severe imbalances in the company's liquidity and banking soundness ratios not long after its founding. The firm's profitability suffered and its books of accounts were structurally unbalanced because the company extended credit to many of its clients. The company's financial performance were unimpressive despite the fact that it had access to several opportunities for growth. This was mostly due to the fact that the firm had some serious problems and management had failed to turn things around. This led to the company's management seeking external financing to address internal budget problems. As a result of these developments, the Jordanian Company for Equipment Leasing went to the CBJ to seek authorisation for a merger with the Capital and Credit House Company. On January 11th, 1989, an agreement was struck between these two firms, and the following days were a whirlwind of activity as they worked to finalize the merger. The newly amalgamated company's management has publicly expressed interest in exploring opportunities to expand into investment banking. On July 27, 1989, Amman Bank for Investment officially started for operation after complying with all of the CBJ's rules and regulations, the vast majority of which pertained to the bank's recapitalization. On July 27, 1989, the board of directors of the CBJ granted permission for this to happen. Capital of 15 million JD was initially obtained, including 10 million JD in stock. The new bank was also required to stick to the CBJ's established ratios for financial stability. When the bank entered receivership on May

29, 1997, the CBJ was appointed as liquidator due to the accumulated losses that had occurred during the bank's last days of existence (Central Bank of Jordan, 2017).

Amman Bank for Investment: The Capital and Credit Company and the Jordan Equipment Leasing Company were merged to become Oman Investment Bank. The bank officially started its work on July 24, 1990, with a capital of 10 million dinars, after obtaining the last legal license required from the Central Bank of Jordan. This last approval was necessary before the bank could open its doors. However, there were significant obstacles in the licensing process, due to the outbreak of the second Gulf War. For this reason, the Central Bank of Jordan on April 6, 1991 amended the licensing criteria for banks to demand more capital. In 1991, when these conditions were met, the bank could open for business. The bank incurred another loss of 9.9 million dinars in 1994, bringing the grand total to 15.2 million dinars. Due to the conservative investment strategies of the bank, the owners' stake in the company was reduced to 6.87 million Jordanian dinars. The value of equity in the bank decreased by 15 million dinars in 1995, which contributed to a total loss of 32.8 million Jordanian dinars for the year. In 1996, the bank's board of directors decided not to increase the capital. Meanwhile, clients and investors began withdrawing their money from the bank, causing its share price to plummet. Therefore, the bank's deposit base decreased from $91.7 million at the end of 1995 to $37.7 million in the following year. (1996). Deposits from other banks decreased from 22.3 million dinars in 1995 to 9.6 million dinars at the end of 1996, which contributed to an increase in Oman Investment Bank's losses in that year. A total of 54 million Jordanian dinars was lost. The Central Bank of Jordan injected capital into the bank to achieve two goals: protecting the interests of depositors and ensuring the bank's ability to keep pace with consumer needs. As a result, credit in the Central Bank of Jordan increased, from 1.8 million Jordanian dinars to 36.7 million Jordanian dinars. On March 1, 1997, the Board of Directors of the Central Bank of Jordan handed over control of the Amman Investment Bank to an independent committee in an effort to protect depositors' funds. Until the liquidation order was issued by the court, this committee had full control over and supervision of the bank's activities. The Court of First Instance in Amman issued an order to close and liquidate the bank on May 29, 1997. According to Article 301 of the Companies Law (Central Bank of Jordan, 2017).

Jordanian Financing House: Late in 1981, with an initial investment of 6 million Jordanian dinars, the Jordanian Finance House (JFH) opened for business. Early growth for the firm was distinguished by an expansion into various financial investment activities such as trading in government bonds and bills, issuing certificates of deposit, accepting deposits, extending credit, and serving as a broker on the Amman Stock Exchange. This was accomplished through the issuance of several types of Treasury debt. We accepted deposits and extended credit. The company's earnings and the quantity of its unloadable funds for medium and long-term investment plummeted in 1987 as a result of its accumulated losses, its failure to attract adequate deposits, and the difficulty in maintaining high liquidity due to the scarcity of effective investing instruments. In September 1988, the JFH board of directors made the decision to merge with the Jordanian branches of Al Mashreq Bank. Tax benefits and the chance to reassess the value of assets like real estate were offered as inducements for bank mergers. Later, the Central Bank of Jordan seized control of Al Mashreq Bank's Jordanian operations when the bank's parent business in Lebanon failed to fulfill its obligations (CBJ). The CBJ's decision to reject the merger followed quickly. Eventually, the highest-ranking members of Jordanian Financing House expressed an interest in forming a partnership with Darco. Philadelphia Bank was chosen by CBJ's board of directors as the working name for the merger agreement back on March 21st, 1992. Prior to their merger, Jordanian Financing House and Darco Company had their assets reviewed by a committee. Such an evaluation was necessary to kick off the merger procedure. This action marks the beginning of the couple's romantic involvement. The Central Bank of Jordan (CBJ) issued a final decision on February 4, 1993, granting the newly merged company an investment bank license, contingent upon the newly merged company meeting all investment bank requirements, including a specified credit/deposits ratio, and the CBJ's approval of the establishment contract and the newly merged company's internal policies and procedures. To date, Philadelphia Bank has received JD 23.9 million in approved and paid-in capital (Central Bank of Jordan, 2017).

Philadelphia Bank for Investment : In 1993, the bank first opened under the name Philadelphia Bank for Investment, and on March 1, 1993, it was legally incorporated under that name with the Ministry of Industry and Trade. Darco Company for Investment and Housing and Jordanian Financing House merged their

respective capitals of JD 3.9 million to form a new bank with an approved and paid-in value of JD 23.9 million. The CBJ discovered several administrative errors and financial breaches at the bank as a result of the bank's dangerous and unsound banking practices, such as the potential of collecting outstanding loans with inadequate guarantees. The CBJ was informed of these concerns. The Bank of Japan stepped in promptly to stabilize the financial institution and protect the rights of its investors and depositors. On September 21, 2002, the CBJ board of directors was replaced with a committee that was nominated by the board. As a result of this judgement, depositors' and investors' rights were protected. Attorney General objections led to a warning about the bank's practices from the CBJ on January 7, 2003. On October 14, 2003, the Prime Minister decided to bring the case to the National Security Court for prosecution under the Economic Crimes Act and he issued an investigative order. The Philadelphia Bank applied to the Central Bank of Jordan (CBJ) for an unusual advance of JD 75 million in 2003. This action was taken to assist the CBJ in meeting its financial commitments, an essential part of the CBJ's mission to maintain the monetary and financial stability of Jordan. The CBJ did Jordan a solid by protecting the country's banking system. In this way, the bank returned all of the consumer deposits. On February 2, 2005, Philadelphia Bank for Investment and Jordan Ahli Bank merged under the authority of Article No. (80) of the Banks Law, as approved by the Cabinet. After a resolution to merge was taken during a special meeting of the Jordan Ahli Bank's general assembly, it was completed in July 2005 once all necessary conditions were satisfied. In accordance with the terms of the merger agreement, the equity of Jordan Ahli Bank's shareholders was evaluated at 97 million Jordanian Dinars, while that of Philadelphia Bank's shareholders was estimated to be worth 0.25 million Jordanian Dinars. Each of Philadelphia Bank's one hundred workers was offered a place in Jordan Ahli Bank as part of the merger. To satisfy the requirements of the Economic Crimes Law, the State Security Prosecution was able to achieve a consolidation settlement with a large number of individuals inside and outside of Jordan who were involved with the Central Bank of Jordan (CBJ). It should be noted that a considerable amount of the bank's obligation to its creditors has been repaid. Several counts of accounting fraud, falsification, and violations of banking and financial legislation were brought against the company's management, and the State Security Court pronounced its decision against them on October 7, 2009.

Jordanian Company for Financial Securities: The Jordanian Company for Financial Securities first opened for business in 1980. Financial statements, liquidity, and credit ratios all took a hit as the firm grew rapidly but failed to implement sufficient credit practices. Thus, the CBJ had to step in and suggest that the business look for structural answers to the problems it was facing. There have been several failed attempts to integrate the corporation with other banking organizations. In view of the ongoing efforts to find viable alternatives, the Arab Bank Corporation of Bahrain has signaled its willingness to make a capital contribution to the firm. Its capitalization is now a standard JD 10 million, making it a commercial bank in all but name. When it came to the bank's assets, the Arab Banking Corporation of Bahrain was among the biggest owners with a 60% stake. The Arab Banking Corporation took over as the bank's successor in 1990 and has been doing so ever since.

Petra Bank: When Petra Bank first opened its doors on June 7th, 1978, it had a paid-in capital of JD 3 million (about US$1 million at the time), and foreign firms (Lebanese and Swiss corporations) could possess no more than 10%. Petra Bank has survived until the present day. At the close of business in 1978, the paid-in capital of the bank totaled 2.3 million Jordanian dinars. The bank's permitted capital was increased to JD 5 million in 1985, and by the end of 1988, it had 26 branches located throughout Jordan in a wide variety of localities. Petra Bank did not send any portion of the necessary reserve to the Central Bank of Jordan (CBJ) in 1989, despite the CBJ's decision to maintain its foreign reserves using the foreign reserves held by regulated banks in Jordan. Because of this information, the CBJ launched a rapid inquiry into Petra Bank's financial stability. The CBJ determined that Petra Bank had not followed procedures for disclosing its ownership of foreign assets and that the bank's auditor had not checked the legality of such assets. An independent examination revealed that the bank underreported both its total overseas assets and its foreign currency reserves. The Petra Bank and the Jordan Gulf Bank were subject to stringent oversight by the Central Bank of Jordan (CBJ). The leadership teams of the two banks were given a number of recommendations for how to enhance the banks' financial standing and address any discrepancies that had developed. Perhaps these opportunities arose because of a shift in banking policy or improved administration. As a direct result, measures were taken to strengthen the two banks' financial footing. The CBJ further offered the necessary assistance in an attempt to produce the desired outcomes;

nevertheless, these initiatives fell short. The banks' imbalances grew because they did not meet the CBJ's standards, particularly those pertaining to liquidity and reserve requirements. For reasons including bolstering capital accounts and increasing liquidity, the Central Bank of Jordan (CBJ) chose to merge Jordan Gulf Bank and Petra Bank in August 1989. Both Jordan Gulf Bank and Petra Bank's management have to consider the other bank's needs in order to reach this conclusion. The boards of directors of Gulf Jordan Bank and Petra Bank were merged into a single committee responsible for the operation of both banks on August 3, 1989, after a decision by the Economic Security Committee. Early findings revealed that the problems faced by each school were unique. Repairing the issues using the same strategies has to be abandoned. In addition, the committee's findings demonstrated the magnitude, complexity, and potentially criminal nature of Petra Bank's issues. As a direct result of this turn of events, military courts were convened and Petra Bank was ordered closed. The CBJ's Economic Security Committee then reached the following conclusions as a result: Decision No. 2/90 of the Economic Security Committee mandated the transfer of Petra Bank's deposits to the Housing Bank (Central Bank of Jordan, 2017).

Decision 3/90 of the Economic Security Committee was released on July 10, 1990, and it related to the overturning of Decision 13/89 of the same committee, which had mandated the merger of Petra Bank and Jordan Gulf Bank. A new special committee was formed to oversee Jordan Gulf Bank after the previous committee's judgment was overturned. Economic Security Committee Resolution No. (13/89) established the prior committee on August 3, 1989.

On July 15, 1990, the Economic Security Committee ordered the closure of Petra Bank by decision No. (4/90). The CBJ reached its decision after determining that Petra Bank's continued operation would have severe negative impacts on the financial system as a whole.

As a result of the CBJ's judgement No. (90/254) handed down on July 19th, 1990, a special committee was formed on July 21st, 1990, and took over responsibility for the Petra Bank liquidation procedure on that date. Legal and financial problems related to liquidation have been handled by the liquidation committee since the end of 2014, when the committee was formed.

Bank of Credit and International Commerce: The Bank of Credit and International Commerce received its charter in 1974 and began operations with a capitalization of one million Jordanian dinars (JD). After passing all required exams, the bank was officially designated as a Foreign Shareholding Company. In June of that year, this bank began serving the public. The Luxemburg Currency Board notified the bank's management and branches on July 5, 1991, that it had decided to halt payments and promises to clients in Jordan. Banking headquarters in Luxembourg made the decision, and branches in Jordan had no choice but to implement it. Bank losses exceeded the value of the company's capital, and other failures were widely reported throughout the world, leading to this decision. Prior to the CBJ's recognition of the bank's weaknesses, a number of prudential protections were implemented. To give only one illustration: The CBJ has ordered all of its branches to transfer to the central bank any monies denominated in foreign currency that are held in overseas correspondent banks. All of this was finished before the bank's security flaws were uncovered. An additional JD 16 million was sent, bringing the total to JD 21.3 million. This resulted in the protection of the depositors' rights. Following this incident, the Jordanian government and CBJ came to the conclusion that it would be best to close all CBJ branches in Jordan for three days. A committee was also established to oversee the bank's activities after the aforementioned window closed. The CBJ gave directives and decisions about the bank's continued operations after the temporary closure period began and up until the decision to liquidate the bank's branches was made on September 10, 1991. The bank's future operations were the focus of these orders and resolutions. The Central Bank of Jordan (CBJ) has been entrusted with the duty of liquidating the bank, and will do so in a way that protects the interests of Jordanian depositors. After reviewing acquisition offers from Union Bank for Savings and Investments and Business Bank, members of the liquidation committee reached the conclusion that the assets of the bank's branches should be sold to Business Bank. Interesting, given the bank's involvement in many pending legal proceedings, the liquidation committee of Bank of Credit and International Commerce (Jordanian branch) decided to maintain the bank's legal existence. Except for this one detail, the committee completed the sale of the bank's assets and the transfer of ownership to Business Bank.

Cooperation Bank: Cooperation Bank is a bank that was founded in 1977 to serve the banking needs of charitable organizations. At the time, this section was responsible for managing the finances of the Jordanian Cooperative Organization. Commercial activities were severely impacted by the bank's financial difficulties due to a lack of liquidity and the bank's failure to pay its commitments to its depositors. The bank's inability to issue loans was exacerbated by its poor debt collection practices and its failure to ful fill the legal responsibilities of the guarantees given for these loans. The bank's credit rating also suffered as a consequence. Due to these factors, the Cabinet officially gave CBJ control of the bank on May 18, 1993, as stated in a press statement. One of the duties of this role was to collect loans and make payments from debt collections. To bridge the gap between actual debt collection and obligation repayments, the CBJ had to set up short-term loans. As a result, the CBJ formed a dedicated committee to deal with this issue. It was determined by this committee that the bank's liquidity was dangerously low and that debt collections amounted to less than one percent of the entire debt outstanding. The committee was made aware of these two concerns. To address this, the CBJ lent the bank JD 3.5 million to increase its liquidity. The success of these cutting-edge innovations was guaranteed by the government. The Cooperative Law No. 20 of 1971 was suggested for repeal and dissolution of the Jordanian Cooperative Organization and the Cooperative Bank in 1997. This rule first appeared on the books in 1997. The Cooperative Jordanian Institution was founded as the successor to its forebears, with the intention of carrying on their good works. After the Cooperative Bank ceased operations, the newly formed organization assumed responsibility for collecting the liabilities that the Cooperative Bank had insured (Central Bank of Jordan, 2017).

2.3. Automated Decision Making

Data that is automatically collected, analyzed, and modeled for decision-making purposes may be taken into account by the ADM in some circumstances when algorithms or AI are used. The system learns from its choices and uses that information to guide its future actions. Despite its technological nature, ADM is a socio-technical manifestation that goes beyond the realm of simple algorithms or artificial intelligence (Kitchin, 2017; Elish & boyd, 2018). Algorithms grow and

change throughout time as a result of human and machine interactions as well as the cultural, institutional, and social settings in which they are utilized. As the quote above puts it, algorithms "may be argued about in a multitude of ways: technically, computationally, mathematically; politically, culturally; economically; contextually; medically; philosophically; ethically, and so on" (Kitchin 2017). The focus of this study is on automation in the sense of "the continuous construction of a process without the intervention of a person," where an automated decision-maker is instrumental. In different settings, computerized decision-makers might be referred to as algorithms, recommender systems, or just "artificial intelligence." Araujo, N. Helberger, S. Kruikemeier, & C. H. de Vreese 2020).

For this reason, ADMs can refer to either semi- or fully-automated decision-making processes that make decisions on behalf of institutions or organizations without human involvement (for instance, decision-support systems that provide recommendations to human decision-makers and/or nudge users of these systems in a certain direction). For important choices (such a government agency deciding how to allocate resources), humans rely to varying degrees on computerized decision-support systems (e.g., judge using an ADM to determine a fen). In many cases, humans are not heavily involved in these algorithm-based decision-making procedures. Yet, users may still have significant control over whether or not to follow the recommendations provided by recommendation systems (for example, health advice or an article). Articles in newspapers or health guides are good examples of this type of content. (Araujo, T., Helberger, N., Kruikemeier, S., & de Vreese, C. H., 2020).

These data-driven systems also assume, implicitly, that the user's (or the decision- maker's) behavior will impact the system's future actions via an algorithmic feedback loop. This anticipation has emerged due to the fact that such systems can aggregate enormous data sets. (Araujo, T., Helberger, N., Kruikemeier, S., & de Vreese, C, 2020).

There is a clear distinction between partially automated and fully automated decision-making processes. This is because there is no need for human intervention in completely automated decision-making processes. It is possible that a subject of a decision will be unable to learn about the data used to make that decision, how to dispute it, or even whether they were given the option to participate at all if the system

is not implemented properly. There is no denying the exponential rise in significance of big data, ML, and AI, and the corresponding rise in the frequency with which they are the subject of "fear and hype cycles" (Elish & boyd 2018). Because of this, they have a great deal of significance in the social sciences. In addition to the technology they provide or the actual performance they achieve, the way in which ADM processes are presented or conveyed to the user or decision subject effects their attitude and perspective. The way people feel and think may be profoundly affected by this (Lee, M. K., 2018). The presumption of neutrality and objectivity is fundamental to the success of such systems. The items are described as having been created "to make value and money; to influence behavior and shape preferences in a specific manner; and to identify, classify, and categorize persons." (Kitchin R, 2017).

Technology such as search engines or other recommender systems are often portrayed as neutral and unbiased socio-technical actors in the debate around their use. In the same way as, say, a recommendation system. (Gillespie T., 2014).

2.4. Artificial Intelligence in Central Bank of Jordan

The United States was the driving force behind the creation of artificial intelligence (AI) (Bibel, W., 2014). According to popular belief, the term "artificial intelligence" was coined by scientist Noam Minsky in his seminal 1960 work "Steps towards Artificial Intelligence." Programming for computers to think, solve issues, make decisions, and discern sounds, visuals and texts written in a natural language in a manner that mimics human capacities has been created as an area of specialised science. Artificial Intelligence (AI) is the name given to this field (Al-Kayat, S.M.A. & Faidi, J.A.W., 1998). According to an article written by P. Sharma in 2011, artificial intelligence can be defined as the science of allowing computers to perform tasks that need cognition, such as those performed by people, and the interaction with a massive volume of data to assist decision-making."

2.4.1. Artificial Intelligence Applications in Banking

Machines with artificial intelligence and robot labour will someday take over both the economic sector and daily life. Using robots to do a variety of jobs, such as

office administration, customer service, etc. is possible because robots are now computerised (Dirican, C., 2015).

As a result of the employment of artificial intelligence-enabled technologies, the banking industry's business practises and customer engagement patterns have undergone seismic transformations. The following are some of the most notable applications of artificial intelligence in this business as a result of its status as one of the sectors most profoundly touched by technological advancement:

First: Chatbot

One of the earliest businesses to use chatbots, which are software tools that utilise natural language processing for human-machine interaction, was the banking industry, which adopted technology early (Doherty, D. & Curran, K., 2019). a piece of software and a computer are used to run and control this piece of equipment (Nair, K., 2018).

Another definition of the term "chatbot" refers to a computer software designed to simulate human-to-human communication through conversations. Customers' input (whether speech or text) about the completion of the essential financial services for their inquiries is processed by this intelligent software using a set of procedures known as natural language processing. As a result, it handles a large volume of inquiries and requests from clients, allowing bank staff to focus on more important consumer problems, innovation, and renewal (Al-Fagi, A.I., 2012).

Software that responds to human demands, provides services to customers around the clock (seven days per week), and tries to keep costs down is called a "smart" system. The Royal Bank of Scotland uses Chatbot technology, introducing the chat technology known as "Luvo," to help with the bank's day-to-day operations. In addition, the user can use a password instead of a bank card to access several financial services, such as cash operations, account statements, and identification of bank products. A bank card is no longer necessary for the consumer to carry about.

This service was first provided in 2016 by Mashreq Bank, one of the UAE's most recognised financial organisations. By selecting "Facebook Messenger" and then "Mashraq Bot" from the menu that opens, you can gain access to a service known as "Mashraq Bot". An internet banking username and password, as well as an account

number associated with the mobile phone number, are used to identify the customer in this case, as the client connects to the robot's communication interface. User identification verification is completed before the robot can deliver financial services from any place, as long as the user has given it permission to do so.

Abu Dhabi Commercial Bank has inaugurated "UBank," a digital banking service centre, for the first time in the United Arab Emirates. Consumers can now access financial services in a more expeditious manner thanks to this innovative new experience. There are many benefits to this service, but the most important one is the speed with which it can get you a new bank account and credit card. Because this service is environmentally friendly by speeding up financial processes and allowing clients access to the service around the clock, it contributes to a better quality of life for everyone (Osman, M. N., 2015).

The first Jordanian bank to offer a chat service was Jordan's National Bank, which went by the moniker "ahlibot" at the beginning of 2018. The bank is making an effort to improve its customer service by using the input it receives (Almonte, R. G., 2018).

A new customer service technology has been developed by the Indian banking industry, according to Dash (2018a). Artificial intelligence (AI) is being used to create chatbots that make it easier for customers to access financial services. Chatbots have already begun making their impression in the Indian banking industry, and this development is in line with this trend. Kotak Bank, which is now Kotak Mahindra Bank, was the first institution to develop and name the programme "Keya." Customers' voices and discussions can be understood by Keya, an intelligent speech programme designed to respond quickly to their requests. As a result, customer satisfaction has increased, response times have shortened, and costs have decreased significantly. Bank of Baroda has also created a chatbot to manage the overwhelming quantity of customer inquiries about the merchandise.

SBI is one of India's largest public sector banks with over 420 million customers. Its name simply translates to "State Bank of India." More than 486 million queries per day are being handled by the bank's chatbot, "SIA," which currently processes 10,000 questions per second. As a result of this, the bank decided to put cameras in all of its branches. Using these cameras, bank employees can receive

immediate feedback on the moods of their customers (Baraokar, S. & Anand, R. ,2018). Intelligent Branches is the second.

Smart branch is a word used to describe a bank location that relies heavily on automated systems rather than human employees for most of its operations. It was at the Construction Bank's branch on Shanghai's Jiujiang Street, one of the country's most important financial institutions, that the first smart branch was implemented. The first time a smart branch was used was at this branch. The branch relied solely on robots to provide client service in this case. These robots were taught to carry out human-like functions, such as conversing with customers, responding to complaints, and answering standard questions about bank cards, cheques, and accounts, among other things. Customers are also greeted by a robot receptionist known as "facial scanning" as soon as they arrive at a branch, which recognises them using this way. Consumers can begin interacting with it via voice communication and will be directed to various service areas as soon as the door is opened.

Rather than relying on human staff for every transaction, the smart bank's smart branches make use of cutting-edge self-service technology such as facial recognition, voice recognition, biometric recognition, and data mining. Employee participation in transactions is optional at the smart bank. (Melvin) Neill, year 2018.

2.4.2. Artificial Intelligence in Banking

The banks can't afford to put off starting their AI journey since they must compete in a future that is brimming with new and cutting-edge technologies (Chakraborty, C., & Joseph, A., 2017).

It's possible to conduct a banking transaction from the comfort of your car without ever getting out of it. The customer can use a window to do business in one of the lanes. For automated teller machines, a voice-activated artificial intelligence (AI) system is being developed. After developing voice-powered artificial intelligence platforms for banking in 2015, Ann Arbor, Michigan-based Clinc began offering drive-through ordering in July of this year. By using the company's conversational AI it interprets requests from customers who speak a variety of languages and/or have heavy accents. (T. Dhanabalan, A. Sathish, 2018).

A bank's front desk, middle office, and back office may all benefit from implementing AI. In addition to traditional banking services, such as depositing checks and making withdrawals, customers may use the bank stations to access a number of other valuable electronic services, such as paying bills and using government websites. The use of big data by banks is changing the financial services industry in fundamental ways. Artificial intelligence (AI) is being put to use in the banking industry to improve customer service by categorizing and organizing data. Banking institutions of the future will rely heavily on AI to better serve the demands of its consumers (T. Dhanabalan, & A. Sathish, 2018).

Humans have been supplanted by machines in India's banking sector in recent years. Consumers may print their passbooks whenever they choose using self-service kiosks called passbook printers. Banking 4.0: "The Impact of AI on the Financial Services Sector and How AI Is Transforming Today's Banks" This functionality has been widely used by Indian financial institutions including Baroda and SBI (State Bank of India). The corporation has set up self-service kiosks where customers may print their own passbooks. A Bank in India Swayam, a passbook printing kiosk using barcode technology, has been put into use by SBI, for example, to assist customers in maintaining accurate passbooks. Financial institutions have been actively hiring recently, but the sorts of talents they're looking for have changed (T. Dhanabalan, & A. Sathish, 2018).

1. **Chatbot-The Intelligent Banking Assistant:** Virtual assistants, often known as chatbots, are cutting-edge technology created to streamline communication between people and computers. Chatbots are one type of artificial intelligence (AI) in banking that is gradually replacing human tellers. These AI-powered gadgets offer cutting-edge personalization and interactivity in the digital realm. The state-run State Bank of India (SBI) has introduced a chatbot called SIA (SBI Intelligent Assistant) to assist clients with routine banking needs. By delivering timely responses in the chat box on the SBI gateway, it also helps NRI clients with their inquiries. (Catalini, C Foster, & R Nanda, 2018).

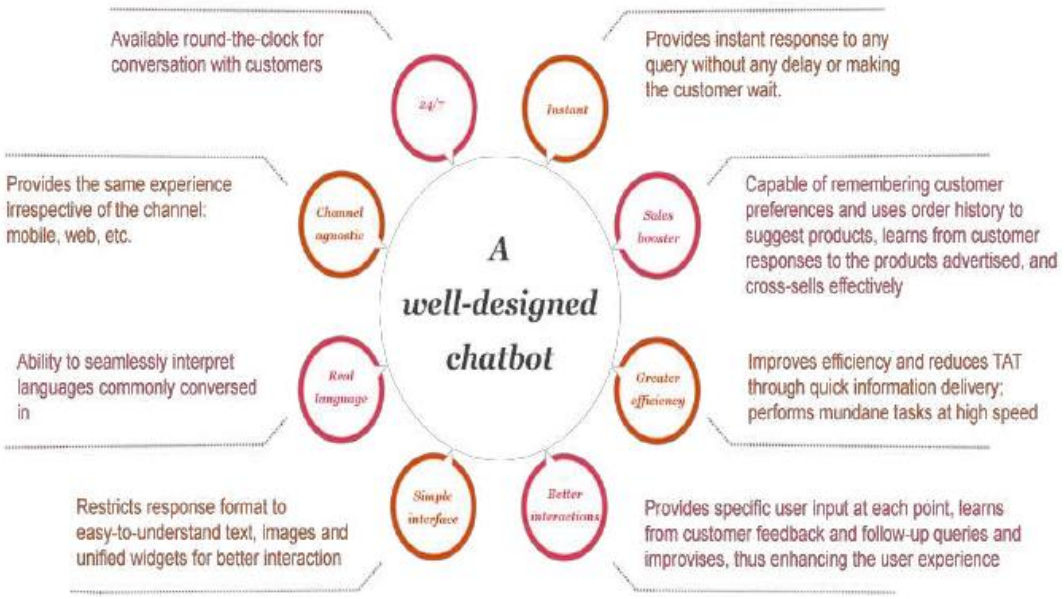

Figure 1. Chatbot

Source:https://www.pwc.in/consulting/financial-services/fintech/fintech-insights/chatbot-theintelligent-banking-assistant.html

2. **Cash Deposit Machine-** Are automated teller machines, which may be used to make deposits at any time. Long wait times to deposit cash are no longer an issue thanks to this new facility. The most convenient and secure place to deposit money at any hour is a bank. This service is provided by both publicly-owned and privately-owned banks and instantaneously credits account balances. Each time a customer makes a purchase, they will be sent a receipt. The machine may be used to make deposits to several accounts. (C Catalini, & C Foster, & R Nanda, 2018).

3. **ATM Machine Helpline-** Customers may use these numbers to get in touch with their banks quickly in an emergency. The ATM industry has also adopted AI. The following new features are available on most ATMs today: The use of machine learning to improve ATM security, the use of machine vision ATM cameras to enhance security and customer service, the use of facial recognition to enhance security and satisfaction, the use of predictive maintenance to keep ATMs running smoothly, and the use of cash demand forecasting to anticipate shortages (C Catalini, & C Foster, & R Nanda, 2018).

4. **Banking-** Around the world, mobile devices are getting smarter. Many people rely heavily on banking on their phones, so it seems to reason that they would be drawn to banking apps that use artificial intelligence. Customers have made the transition to mobile banking with relative ease. Having access to a virtual assistant, like Apple's Siri or Amazon's Alexa, is appealing. People all across the world are using it and finding it useful. The needs of the customer may be easily met by using a mobile app. Intelligent applications can monitor a user's spending and saving habits in order to provide tailored advice. Mobile and SMS banking services are now standard at all financial institutions. Mobile banking has simplified the process of doing routine financial activities including deposits, withdrawals, and bill payments. With the development of artificial intelligence in mobile banking, customers can now do more effective financial planning, receive more insightful financial advice, and complete transactions more quickly and easily. (C Catalini, & , Foster &, R Nanda, 2018).

5. **Blockchain Technology and Banking:** Blockchain is a digital, distributed ledger with no central authority or middlemen. It's a chunk of data that can be accessed over the internet (chain). Blockchain is utilized to securely store data, and AI serves as the decision-making engine and helps analyze the data. The cryptocurrency sector receives the lion's share of the criticism when it is said that blockchain technology is solely useful for facilitating bitcoin transactions. Data security, fraud prevention, and other difficulties relating to digital transactions are only some of the problems that blockchain technology hopes to address. Interbank transactions, international money transfers, crypto banking, record keeping, KYC, loan syndication, and improved transparency are all areas where blockchain technology has great promise in the future.**AI-based Algorithms and Fraud Detection:** AI revolves around algorithms. The building blocks of machine learning are algorithm sequences. A computer algorithm is a procedure for addressing a problem that consists of a collection of rules or instructions. Artificial intelligence is particularly efficient at discovering patterns in real time. Added behavioral indicators are used to identify

potentially malicious conduct and provide suggestions for mitigating risk. For instance, Feedzai, a data science firm, uses algorithms to detect e-commerce fraud.

Figure 2. Fraud detection

Artificial intelligence has revolutionized the field of fraud detection by producing very accurate results. Artificial intelligence (AI) technologies have been widely used in the field of fraud detection since since fraud emerged as a significant concern in the banking industry. Improvements in the banking industry are aided by AI technology. The Impact of AI on the Financial Services Sector and Its Impact on Today's Banks" 4.0 584 Understanding client habits helps uncover emerging fraud trends. The FICO Falcon fraud assessment system, which employs a neural network shell to deploy advanced deep learning based artificial intelligence systems, is one example of the banking industry's successful implementation of data analysis methodologies. Pattern recognition and predictive analytics are used by AI and ML systems to detect and stop illicit financial dealings. There have been significant gains in identifying fraud, and more are expected in the future (C Catalini, & Foster, & R Nanda, 2018).

2.5. Artificial Intelligence

The development of artificial intelligence as a branch of computer science has led to a sea change in the IT industry, paving the way for the construction of intelligent machines and software that can mimic human behavior (Kamble, R., & Shah, D., 2018). It's a catch-all term for the study of giving computers human-level reasoning, planning, learning, and perceptual abilities. While the word "machines" is used, the term is applicable to "any sort of living intelligence," therefore AI may be understood to encompass a wide range of skills that work together. (Kitsios, F., Giatsidis, I., & Kamariotou, M., 2021).

Though the long-term effects of this shift in business strategy are unclear, companies are already beginning to reorganize around AI (Diener, F., & paek, M., 2021). Artificial intelligence (AI) is a branch of computer science concerned with the development and study of machines capable of displaying human-like intellect in a variety of contexts. When we speak about artificial intelligence, we are referring to the study of concepts that will mold machines capable of replicating responses consistent with human norms, given the human capacity for intention, thought, and conclusion (Shukla Shubhendu, S., & Vijay, J., 2013).

Haenlein and Kaplan's (Haenlein, M., & Kaplan, A., 2019) definition of artificial intelligence states that intelligent machines can understand and interpret speech and language, work to solve problems, diagnose medical conditions, manage traffic, play games like chess, and even imitate the styles of great artists like the Impressionists. Most commonly, the term "artificial intelligence" refers to a machine that can carry out activities normally associated with human intelligence.

According to Kitsios and Kamariotou (2021) (Kitsios, F., & Kamariotou, M.), artificial intelligence is the study of depicting and examining the potential of machines to learn like people and to respond to certain behaviors. While Poola (Poola, I., 2017) describes it as creating more advanced complex systems that might potentially surpass humans in a number of aspects, we might say that it is simply the development of more sophisticated systems.

(Payne,.M., Peltier, J. Barger, V.A, 2021) argued that AI has the potential to transform virtually every aspect of human life, including but not limited to: the economy, the military, communications, healthcare, privacy, security, and ethics.

Research in artificial intelligence (AI) has traditionally been thought of as a branch of computer science devoted to the creation of smart machines and software. Finance transactions have been revolutionized by artificial intelligence (AI) technology and applications. Incorporating new technology and AI into financial services has enhanced value creation in a number of important ways. (Gomber, P., Kauffman, R.J., Parker, C., Weber, B.W., 2018).

Four dimensions are used to characterize AI. Included are the domains of intellect, research, business, and computer programming; in the smart dimension of artificial intelligence, robots are programmed to mimic the way humans are believed to function following much study and effort (Duan, Y., Edwards, S., Dwivedi, K., 2019). Artificial intelligence, in this context, refers to the use of sophisticated technology in Jordanian commercial banks that enables the management of operations and tasks via mechanisms more advanced and intelligent than those of their human creator by imbuing them with knowledge and sensory ingredients that enable them to learn automatically and develop themselves. Multiple aspects of AI were used in the research, including When dealing with issues that call for specialized knowledge and experience, the expert system (ES) (Kwak, W., Shi, Y., Lee, F., 2021; Kerzel, U., 2021) explains that "techniques that operate to uncover answers." Thus, there are several methodologies from which to choose while working with expert systems. AI, or artificial intelligence, is a form of computing in which the mental processes involved in making choices may be analyzed and stored. Expert systems are a type of AI that has gained widespread acceptance since the 1980s. They have advanced to the point that they may effectively replace human specialists in a certain field of decision-making. What we're talking about here is the use of computer code to mimic the method in which a subject matter expert would think (Chukwudi, L., 2018).

Knowledge representation and inference (KRI) indicates that an AI system may learn about its surroundings, store that information in a way that facilitates rapid and appropriate responses to environmental stimuli (Fraij, j., Haddad, H., Aburumman, N., 2021). Knowledge representation and acquisition formats are what this term refers to. Smart systems' adaptability to their environment, knowledge acquisition and storage, ease of reflection, and utilization of time are all conveyed via knowledge representation and procedural inference. When dealing with large amounts of data or

complicated data structures, knowledge representation and inference become more important for intelligent data processing.

In today's data-intensive, information-rich world, intelligent data processing, founded on a sound core knowledge representation and the logic employed by such systems in the interpretation and analysis of data, is a must (Arevalillo-Herráez, M., Arnau, D., Marco-Giménez, L., 2013).

The branch of AI that is ostensibly concerned with thinking and how it leads to intelligent behavior is the one that first addresses the issue of how to represent information symbolically and mechanically process it by means of thinking programs (Greenman, C., 2017). It also demonstrates how knowledge representation and logic play a part in connecting human expertise with the digital realm (Fraij, j., Haddad, H., Aburumman, N., 2021).

Machine learning (ML) is complex and interdisciplinary, the study and development of machine learning (ML) derives from fields as diverse as computer science, artificial intelligence, statistics, and even biology. In an effort to improve the quality of services and products offered to customers, the banking sector implements many of its recommendations (Bertomeu, J., Cheynel, E., Floyd, E., Pan, W., 2021). The field of artificial intelligence known as machine learning automates and improves the process by which computers learn from their experiences without being programmed or assisted by humans. This is achieved by building initial learning models using data and various algorithms, all of which rely on data as their foundation.

2.6. Social Innovations

While the concepts of social innovation and social business did not develop until the late 1990s, there are many examples dating back more than a century. (Dart, R., 2004).

Dart (2004) discovered that many social enterprises adopted hybrid structures, combining non-profit and for-profit operations, with organizations shifting their emphasis to the market, clients, income generation, commercialization, and business practices. Therefore, for-profit businesses, non-profits, or a hybrid of the two may take

the lead in the social innovation process. As Dart (2004) noted, social businesses are increasingly seen and implemented through the lens of pure profit maximization.

(Chell, E., Karatas-Ozkan, M. & Nicolopoulou, K., 2005) imply that these organizations need to engage in commercial activity that creates value for social goals and wealth to enable reinvestment and sustainability, and that this activity necessitates entrepreneurial leadership to recognize and exploit entrepreneurial possibilities.

However, primary motives remain altruistic rather than monetary (Shaw, E. & Carter, S., 2007). Sustainable innovations have been defined in the literature as being more difficult to identify and more open to interpretation than traditional corporate innovations (Hall, J. & Vredenburg, H., 2003). This is because social innovators typically have to win over a wider range of interested parties, and each may have their own set of goals and objectives, as well as views and values that may conflict with each other. Hall and Vredenburg (2003) agree that the stakes are greater for this type of innovation because the science of sustainability is still developing and has not been universally embraced by the scientific, political, and management sectors. They argue that innovators on this path need to address not only technical challenges but also public perception and reactions from environmental and social activists, and other non-technical considerations.

(Spear, R, 2006) In this model, external organizations or groups play critical roles in the day-to-day running of the social company and provide sustained support for the entrepreneur's work. It might take a social company a long time to establish itself in the market, attract investors, recruit volunteers, and acquire pro bono legal or accounting counsel. They need to gain the respect of their peers and the confidence of potential investors by demonstrating their competence and expanding their skills. Grants and government contracts, volunteers, community mindshare, political attention, clients or customers, and skill are just some of the things that people in this industry compete for (Austin, J., Stevenson, H. & Wei-Skillern, J., 2006). Entrepreneurs in the social sector frequently need to work within 'community' or 'collective' structures if they are to achieve success (Shaw, E. & Carter, S., 2007).

(Chell, E., 2007) acknowledges the fact that, like business owners, social entrepreneurs must manage limited resources while facing additional stress from their attempts to achieve a "double" or "triple" bottom line (financial profit, social benefit

and environmentally responsible production). As an added note, while some social innovations may be very minor in scope, many need for extensive and far-reaching adjustments to existing structures in order to effectively challenge the status quo (Gladwin, T.N., Kennelly, J.J. & Krause, T-S., 1995; Noci, G. & Verganti, R., 1999 ; Mulgan, G., Ali, R., Halkett, R. & Sanders, B., 2007a). On their website (www.nesta.org.uk), the folks at NESTA draw a line between corporate and social innovation. Culture plays a vital role in social innovation, which is said to place a premium on ideas and a future-oriented perspective. In contrast to the market and consumer demands that motivate commercial innovation, the motivation behind social innovation is the satisfaction of human and societal needs. According to (Bessant, J. & Tidd, J., 2007), "the major focus is on producing value rather than wealth" when it comes to social innovation. Making money is necessary, but it's not the whole point. We discovered that the literature generally agrees on the types and levels of difficulty of the issues that social innovators attempt to address. A great deal of research and writing has been done on the topic of social entrepreneurship and the kind of leadership that is required. There is also a lot written about the social enterprise's organizational makeup, management, and ownership. Some studies have examined the funding and goals of social enterprises, seeking a middle ground between social and economic concerns. There is a dearth of literature and research on the social innovation process and the challenges to invention experienced by social innovators, despite widespread agreement that innovation is essential (Spear, R., 2006; Shaw, E., & Carter, 2007). According to our literature study, there may be a more widespread social innovator's problem, similar to the one highlighted by (Christensen, C.M., 1997). Since social innovation typically necessitates a radical shift in established practices, it often necessitates taking on challenges that appear insurmountable.

2.7. Hypothesis Formulation

2.7.1. Relationship Between Artificial Intelligence and Decision-Making

The application of artificial intelligence (AI) in decision-making has been validated across a range of industries, from healthcare to smart cities to business to government to the private sector. Complex treatment decisions may be handled better

by AI modeling than by intuition alone, particularly in ophthalmology (Kermany, D.S., Goldbaum, M., Cai, W., Valentim, C.C., Liang, H., Baxter, S.L., McKeown, A., Yan, F., Wu, X., Yan, F., et al., 2018). This framework has the potential to expand as a technical infrastructure for personalized (Bennett, C.C.; Hauser, K,2013).

Applying modern AI methods to high-impact weather forecasting increases our capacity to sift through large amounts of information in search of insights and the best possible direction for human weather analysts and decision-makers (McGovern, A.; Elmore, K. & Gagne, D.J, 2017). Superior quantitative, numerical, and analytical capabilities in AI have allowed it to surpass humans in algorithmic decision-making. Organizational big data (Jarrahi, M.H., 2018) understanding the workings of a high-frequency, real-time city will be aided by the progress of artificial intelligence through machine learning, but it's hard to see how these methods could ever affect decision-making in the near future (Batty, M, 2018).

Because of their complex layouts and the advanced integrated technology they employ—including numerous sensors and equipment linked to computerized systems that use analytics, surveillance, and decision-making algorithms—banks are famously hard to rob (Hall, R.E. & Bowerman, B.& Braverman, J.& Taylor, J.& Todosow, H.& VonWimmersperg, U, 2000). and use of Internet of Things in smart cities (Arasteh, H. & Hosseinnezhad, V.& Loia, V.; Tommasetti, A.; Troisi, O.; Shafie-khah, M.; Siano, P, 2016; Cardullo, P.& Kitchin, R, 2019).

Although many articles discuss the effects of urbanization on the environment and the benefits of modern information and communication technologies on people's daily lives, few discuss the role that public and private organizations play in raising living standards (Dameri, R.P,2013& Gaur, A.; Scotney, B.; Parr, G, 2015). This article focuses on the definition of a bank provided by Caragliu (Caragliu, A.; Del Bo, C.; Nijkamp, P., 2011), who states that a bank is present when investments in conventional and information communication technology infrastructure, as well as in social and human capital, contribute to sustainable economic growth and improved living standards through the effective and equitable management of natural resources through democratically accountable and community-based participation.

Similar to how different types of computer technology form the basis of planning support systems, AI provides insight into the decision-making process. Few

tools have been developed to show how AI may improve the state of the art in smart city planning. As far back as a few years ago, it experimented with expert systems. Although certain useful skills emerged as a result of these developments, they eventually fell out of favor as being too straightforward and obvious (Batty, M.; Yeh, T, 1991).

Multiple scholars have stressed the importance of AI-processed big data interpretation in smart city decision-making (Allam, Z.; Dhunny, Z.A,2019& Berntzen, L.; Johannessen, M.R.; El-Gazzar, R, 2018,& Ben Rjab, A.; Mellouli, S, 2019). More and more of this is becoming feasible as the current concept of "Smart" pushes for the widespread installation of sensors, computer cores, and other communication networks in urban areas throughout the world (Alvarez,,R, 2017). (Allam, Z.; Dhunny, Z.A,2019). We may learn more about how cities develop, adapt, and respond to their varied settings thanks to the integration of these digital ideas with artificial intelligence (AI) and machine learning (ML) technologies, which make it possible to collect data in near real-time.

Allam and Dhunny (Alvarez,,R, 2017) agreed that big data analysis may aid urban city governors in making educated decisions that would benefit socioeconomic variables and the effective implementation of programs. This leads us to propose the following theory:

H 1. Artificial intelligence (AI) positive influence on Decision-Making.

2.7.2. Relationship Between Social Innovation and Decision-Making

This variable is important because it highlights the importance of government, community, and other stakeholder participation in the banking industry's decision-making process. To improve policy and decision-making by the government and the public in a megacity, there has to be a solid administrative framework in place. (Torfing, J.; Peters, B.G.; Pierre, J,2012, & Conway, S, 2020). It calls for forming external collaborations and integrating internal governance frameworks (Meijer, A., & Bolvar, M.P.R., 2016). One of the five criteria that makes a city smart is public-private partnerships, according to a study on the drivers of smart city development (Myeong, S., Jung, Y., & Lee, E., 2018). They elaborated on the fact that people and residents'

involvement in urban policy decisions is not limited to that of passive recipients, but rather that of active contributors to both the decision-making process and the government.

Better policies and decisions that benefit everyone are the result of collaboration between local governments in bank and the people they serve, private groups, and other social actors. Collective smart governance seeks to enhance the social, economic, and ecological performance of cities by creating "innovation hubs" (Kundu, D., 2014) that strengthen relationships amongst various groups and organizations.

The Smart City of Amsterdam is a model of cooperative municipal administration since it displays a new relationship between municipal administration, commercial enterprises, research institutes, start-up investors, entrepreneurs, innovators, and ordinary people (Mora, L.; Bolici, R, 2015, Capra, C.F,2019). Amsterdam's extended collaboration of more than 2207 people and organizations has resulted in various initiatives including infrastructure and technology in the domains of energy, water, waste management, transit, inhabitants' standard of life, and education (Capra, C.F, 2019]).

The city's leadership has branded it a "urban living lab" and is encouraging commercial and public sector entrepreneurs to use AI to analyze collected data in order to develop new applications and explore new ways of improving existing companies and services. The "Smart Citizen" initiative, which encourages individuals to engage as data agents, is crucial for establishing a smart city through engaging inhabitants and communities (Somayya, M.; Ramaswamy, R,2016).

People in Amsterdam actively participate in data collecting by sharing what they know about sustainability challenges and making personal connections with their city. When "commercial concepts, managerial methods, and market principles are permeated into the realm of non-profits and government," we speak about social innovation (Phills, J.A.& Deiglmeier, K.& Miller, D.T,2008).

AI has the potential to significantly alter the ways in which citizens participate in and influence policymaking processes at the national level. Although AI is not the only answer to issues that arise between city government and stakeholders, it is a powerful instrument that can be used to improve the effectiveness of city government

when it comes to policy and decision-making through the integration of social innovation. An additional benefit of AI implementation in social innovation is that it may show how the municipal administration might stimulate the development of other digital devices used in decision-making (Mehr, H.; Ash, H.; Fellow, D, 2021).

Several authors have highlighted the role that AI plays in social innovation (Dargham, M., & Hachimi, H., 2021), the effect that social innovation has on decision-making (Gibson-Graham, J., & Roelvink, G., 2016), and the effect that AI has on smart decision-making (Duan, Y , Edwards, J.S, & Dwivedi, Y.K, 2019). We also attempted to explore the mediation influence of contextual variables: social innovation between independent and dependent variables, as suggested by (Little, T.D.& Card, N.A.& Bovaird, J.A.& Preacher, K.J.& Crandall, C.S., 2007). If we accept the findings of the prior studies as valid, we may formulate the following hypothesis:

Hypothesis 2. Social innovation (SI) positive influence on Decision-Making.

2.8. Research Framework

The primary concern of this study framework is mainly on how the Decision Making on the effect of Artificial Intelligence, and Social Innovation in Jordina bank, The framework has developed tow hypotheses in an attempt to answer and determine a set of three (3) research questions and three (3) objectives. The Research Framework of the Study is illustrated in Figure 3.

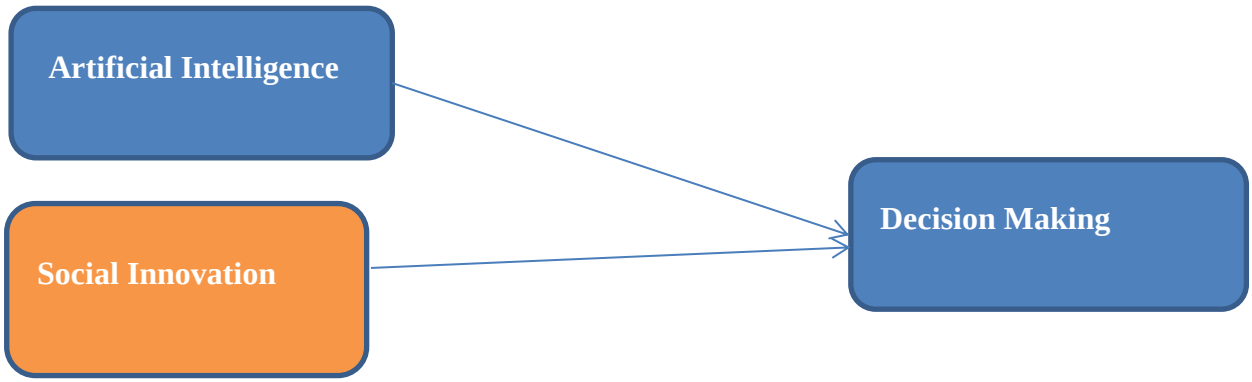

Figure 3. Research Conceptual Model

2.9. Underpinning Theories

2.9.1. Artificial Intelligence (AI)

In the fields of science and technology, a "theory" refers to a body of knowledge that makes assertions and predictions about some aspect of that knowledge. We may classify theories into two broad categories:

Here we have the descriptive theory, for which we require an observational foundation in order to formulate a hypothesis. The theory's predictions and generalizations can help people make decisions about their activities. Ideas from the field of natural sciences serve as prime instances of this sort of hypothesis.

Normative theories are those that make assumptions as a starting point for their findings. Assumptions should be recognized as suitable in a certain field before any conclusions are accepted as true. Mathematics and engineering are where this type of theory shines brightest. (Gabbay & Woods,2003).

Although there may be overlap between the two types of theories (in the sense that some aspects of a theory may also belong to the other kind), a theory's underlying category is often clear. While mathematics plays an important role in contemporary physics, this does not change the field's fundamental descriptive character. However, computer science depends primarily on normative assumptions rather than empirical methodologies when it comes to designing and utilizing computers. (Newell & Simon ,1976).

Because of the need for both description and prescription, a "Theory of AI" is unlike any other theoretical framework. Since von Neumann's book is titled "The Computer and the Brain," one may assume that AI studies the connections between the two (1958). Although computers can do a better job than humans in many situations, they still can't duplicate many features of human brain activity. This realization informs and drives the current investigation. An AI theory should act as a link between "the Brain" and "the computer" in order to direct the creation of AI systems with "mental power" on par with the human brain.

Though "cognition", "thought," or "thinking" may be preferred by some, "intelligence" is simply the word that conveys the most intuitive understanding of the

skill or attribute that can be transferred from the brain to a computer. The problem's essence is not significantly altered by the wording used here.

2.9.2. Social Innovation

When evaluating whether or not the concept of social innovation is more hype than substance, I first trace its origins and propose that it is not a novel idea but rather a modern embodiment of the long-standing conflict between "business" and "society." As a concept, it is emblematic of the ongoing debates about the role of markets in society, or the potential subjugation of society to market-based forms of organizing and the growth of civil society, that have been stoked by Adam Smith's writings. If social innovation is ultimately about the process and pursuit of economic and social development, then it has to have some sort of foundational link to values and moral legitimacy, some sort of understanding of what it means to be "doing good" and "being good" at certain moments in time.

My analysis of academic and practitioner literature, as well as my consideration of how other sectors and disciplines handle the activity, led me to the three theories I've identified. Each of the three conceptual frameworks offers a unique lens through which to view social innovation: (1) as a means of producing and disseminating social value; (2) as a nebulous idea that gives rise to the meaning networks essential to cross-sector partnerships; and (3) as an effort to bring about systemic shifts in established institutions (Logue, D. 2019).

2.9.3. Decision Making

Several writers (Geva & Mintz, 1997; Hastie & Dawes, 2000), who specialize in the field of decision-making, have written about the significance and impact of beliefs, values, and behavior on the decision-making process. Similarly, the writers generally agreed that cultural factors had strong effects on individuals' views, attitudes, and actions. (Benedict, 1959; Hall, 1969; Hofstede, 1997)**.**

Thinking about and responding to environmental cues are key to decision-making phenomena. Humans' cultural backgrounds shape their attitudes, values, and practices. Culture, which Higgins and Bargh (1987) refer to as "filters and simplifying

processes," aids in processing information and making sense of one's surroundings, as evidenced by their study of many decision-making models. Hogarth (1994) confirmed that people are more sensitive to differences in outcomes depending on their reference point, or what Higgins and Bargh referred to as schemas. Culture is a useful umbrella term for describing the myriad factors that shape people's ideas and actions as they seek new ways to address persistent problems. All civilizations have access to the same set of issues and the same set of solutions at all times, but people in different cultures have different preferences for how to solve those problems. A cursory literature review reveals an association between cultural background and judgment. Companies in the twenty-first century may need to establish decision-making methods that incorporate sustainable development principles into both strategic and operational planning in order to deal with the increasing number of uncertainties that companies face. The moral and cultural values embodied from the start is a major principle of this type of organisation. (Oliveira, A,2007).

2.10. Summary

The second chapter discussed artificial intelligence and its impact on decision-making in banks, and also reviewed the literature on previous and current empirical work on the three variables of the study which are artificial intelligence, social innovation and decision-making. The variables were reviewed and discussed to provide a better interpretation that leads to the formulation of hypotheses to answer the research questions. Theoretical foundations such as the theory of artificial intelligence, the theory of social innovation are provided with the possibility of establishing relationships between theories and entire structures.

3. RESEARCH METHODOLOGY

3.1. Introduction

The previous chapter containing the literature review describes studies devoted to the influence of Artificial intelligence and social innovation on decision-making. More specifically, the variables examined in the framework of this research include (artificial intelligence, social innovation, and decision-making). This chapter presents the study methodology, and hypothesis development based on a literature review to clarify the influence between variables (independent and dependent variables). The questionnaire was used as a data collection tool to achieve the research objective. Besides, in this chapter An overview of study methodology, including sampling strategies, data collection methods, and analysis tools, will be presented.

3.2. Research Design

Research designs provide a blueprint for conducting studies. The procedure for gathering relevant information that may be utilized to formulate or answer research questions is outlined. In a nutshell, your research proposal is a high-level outline of your methodology. Research problems are built or solved through the collection of meaningful data and information. In simplest terms, it's a visual representation of your whole research strategy, the most appropriate research method for this study kind is quantitative research, which is what we've used in this study (Saldaña, J.,2021). Associating separate variables with numerical data allows the quantitative approach to encompass a system of inquiry that can be generalized to the population (Finnerty et al., 2013). Data may be acquired quickly and efficiently, and results can be directly related to a study's topic of study through quantitative research (Creswell, 2013). A quantitative outcome is also dependent on the author's competence and arguments to support the hypothesis and findings. Simple empirical relationships are used frequently to gain more knowledge. As a result, this form of study relies heavily on the foundation and impression concept to arrive at correct aspects like hypotheses or worries (Creswell, 2013).

Descriptive measurements and a survey approach were employed in this study Remler, (D. K., & Van Ryzin, G. G., 2021). The research employed a descriptive technique to describe the influence of artificial intelligence, and social innovation on decision-making (Vrontis, D., Christofi, M, & Trichina, E., 2022). The survey approach will also be used in this study to create questionnaires to gather information regarding the influence of artificial intelligence on Jordanian Banks' decision-making processes. Questionnaires are a method of gathering data from a sample of researchers, according to (Pandey, P., & Pandey, M. M., 2021; Zikmund et al., 1994). Therefore, the data will be collected using the links on online of special Bank Sector in Jordan.

3.3. Population and Sample Size

In this subsection, we'll talk about how we came up with our study's projected population size and how we used that number to determine how many people to include in our sample. There is an emphasis on both the sample framework and the sample methods in an effort to facilitate comprehension.

3.4. Population Size

The population is defined as the total group of individuals, events or things of interest that need to be investigated by the researcher (Sekaran & Bougie, 2016).

Cresswell (2012) defined a population as a collection of people who share observable traits and may be studied together. In order to generalize survey results to a larger group of individuals, it is necessary to draw from a representative sample, and this group is the population (Gobo, G, 2004).

3.5. Specify the Sample Size

Sample size can be interpreted as a subset of the total population available for collection while sampling is done. It represents a small portion of the population that is chosen from the whole population or a subset of interests. Furthermore, Sekaran, and Bugis (2016) emphasized that data collection is one of the main reasons for carrying out the sampling procedure. Since it is difficult to subject a large population to the

collection of information, determination of sampling volume becomes very vital in research. A reliable and better result will be obtained if an appropriate sample size is used, and it reduces the fatigue and error of data collection.

The sample size should be sufficient and sufficient to adequately estimate population features and provide reliable results for the study (McMillan & Schumacher, 2014). According to Sekaran and Bougies (2016), in order to get reliable findings, you need a sizable enough sample to accurately represent the population as a whole. Therefore, the criteria established by Kriejcie and Morgan are used in the present investigation (1970). The Central Bank of Jordan estimates 315 managers work in Jordanian banks in 2021. Financial Institutions Regulatory Authority of Jordan (CBJ , 2021).

Accordingly, 315 managers with decision-making authority were chosen as the sample size after deliberation utilizing the Kriejcie and Morgan (1970) sample determination (Malhotra, 2012).. The current study adopts the widely used technique for sample size adjustment given by Salkind to make the sample size more accurate and reliable, to reduce errors in the sample size, and to avoid problems of lack of responses, which are typically encountered while conducting survey research (Bartlett, I. I., 2001).

To compensate for any missing questionnaires and the difficulty of the survey, Salkind suggested increasing the sample size by 40-50%. The total number of participants in this study was 315, with an additional 50% added according to Salkind's recommendations, as accepted by (Barlett, Kotrlik, & Higgins ,2001).

Where y is a constant greater than or equal to 50% and 315 is the actual number of people in the sample.

$$y = \frac{50}{100} \times 315$$

$$y = \frac{50}{100} \times 315$$

$$y = 0.5 \times 315$$

$$y = 158$$

From their numerical value in the formula, we may infer that 158 people constitute 50% of the overall sample size of 315. This study's population reached 473 (473 = 315 + 158), hence the sample size was calculated to be 315 Amman banking managers. In other words, the study's sample of bank customers is comprised of 473 randomly selected survey instruments.

3.6. Sample Techniques

This study followed the suggestion of Bryman and Bell (2015) and used the random sampling method to obtain a representative sample from the entire population. Simple random sampling, according to Hair, Hult, Ringle, and Sarstedt (2016), is to choose a random initial starting point in the list, and then randomly select each n element in the sampling frame. Zickmond et al. (2013) elaborate on this concept by defining simple sampling as a technique in which a random starting point is selected, and then the N number of population items per unit is randomly selected.

The present study employed a simple random sample approach to generalize the results to the entire population (Bryman & Bell, 2015). Based on his findings, Creswell (2012) advocates for a random sampling strategy, wherein samples from a given population are picked at random. The goal of using a simple randomized sampling method is to have the characteristics of the sample more accurately reflect those of the population as a whole (Sekaran & Bougies, 2016).

In addition to reducing the potential for human error and bias in the selection of instances in the sample, simple random sampling is also advantageous since it is quick and simple to use. It ensured that a representative sample would be taken from the population, and it enabled for in-sample statistical analysis to be performed (Hair et al., 2016; Sekaran & Bougies, 2016; Zikmund et al., 2013).

In the current study, an uncomplicated and appropriate sampling strategy was adopted and was effective in previous studies (Aliyu, 2014).

3.7. Data Sampling

This research will focus on interviewing a selection of managers who are currently employed in financial institutions in Jordan. According to the available research, there is evidence of a correlation between the number of items and the size of the sample (Amin, M., & Isa, Z., 2008). The importance of having a large sample size in order to acquire correct findings from the analysis cannot be overstated since, as demonstrated in, the sampling error becomes less as the sample size gets bigger (Fink, A., 2003). The number of managers working in Jordanian banks in Amman has reached a total of 315. (Central Bank of Jordan, 2021).

As a result, in order to reduce the likelihood of making mistakes, the standard minimum sample size table that had been compiled by Sekaran was used in the process of selecting the sample for this research, as can be seen in Table 1 below. As a result, the collection at the Bank of Jordan in Amman has 315 samples (Sekaran, 2019), which enables an error rate of less than 5 percent at the level of confidence that is 95 percent. Because incorporating every single member of the visitor population was an impractical task, a representative sample was used instead.

Table 1. Sample size calculation

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	180	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346

Source: “Research Methods for Business A skill building approach” by (Sekaran, 2019) 8th Edition

When selecting a sample from a larger population, a simple random sampling (SRS) ensures that every member of the sample has the same chance of choosing any

other member. Using SRS, the probability of selection for any given group of people k is independent of other groups of individuals k (Yates, Daniel S.; David S. Moore; Daren S. Starnes, 2008).

The use of a simple a random sample is the cornerstone of every unbiased sampling strategy. There are many different types of sampling, but one of the most basic is random sampling (Qian, W., Chen, W., & He, X.,2021).

3.8. Measurement of Instruments

The study relies heavily on original sources. The survey questionnaire used to identify participants and obtain responses is the primary data source for this investigation. Articles, journals, newspapers, and online sources were consulted for their descriptive details. The researcher may benefit from the descriptiveve dais ta not only in developing the literature review and strengthening the research framework, but also in understanding the phenomenon and the research gaps. (Churchill, 1999).

The instruments used to collect data for analysis in order to arrive at a definitive truth are called "data instrument tool" by researchers. The questionnaire is used to collect information for this investigation. A close-structured questionnaire, created by the researcher, was utilized for this study since it is the most practical and easiest method for data collecting from the resentment. The respondent was asked to answer one of five items. Utilizing a set of tailored questions and answer choices derived from the 5-point Likert scale, (Churchill, 1999).

The current study utilizes and modifies a measuring strategy established by prior research (Churchill, 1999). This means that the study model includes descriptions of construction factors related to decision making, AI, and social innovation. The study's five-point scale is displayed in the following table at the value of 2.

Table 2. Illustrates the five liker

1	**2**	**3**	**4**	**5**
Strongly Disagree	Disagree	Neither Agree/ nor Disagree	Agree	Strongly Agree

3.8.1. Decision Making

Collection, processing, modeling, and utilization of data for automated decision-making may all be accomplished with the help of algorithms or AI. Automatic Decision Making (ADM) is described as follows: the system learns from its own evaluations and uses that knowledge to improve its own performance. As a sociotechnical concept, ADM should expand beyond conventional understandings of what an algorithm or artificial intelligence actually is (Kitchin 2017; Elish and boyd 2018). While "encoded methods for turning input data into a desired output, based on predetermined calculations," this definition varies depending on the era, the institution, and the level of human involvement with the algorithm in question (Gillespie, 2014). Algorithms "may be conceived of in a variety of ways: technically, computationally, mathematically, politically, culturally, economically, contextually, physiologically, philosophically, morally, and so on" (Kitchin, 2017; Pringviriya, 2015). Automated decision-making is the focus of this study; it is described as "the continuous generation of a process without the involvement of a person" (Dodge and Kitchin, 2007). (Table 3).

Table 3. Measurement of Decision Making

Ser.	Attributes
1	Jordanian Banks are using new technologies instead of using old methods of decision making
2	Jordanian Banks collect a lot of data about any opportunity that arises to make a better decision for the public
3	Whenever Jordanian Banks face a difficult situation, they are optimistic about finding a good solution for the public
4	Jordanian Banks are studying all available alternatives for decision making
5	Jordanian Banks do not delay making a decision for the public whenever the need arises before it is too late;

Sources :Adapted from (Bokhari, S. A. A., & Myeong, S., 2022)

3.8.2. Artificial Intelligence

Artificial intelligence is defined, as the human race will be replaced by artificial intelligence and robotics in both industry and everyday life. Since it is automated, robots can take over the positions of office staff and call center agents (Dirican, 2015; Yan, 2015). In this study, the influence of AI on decision making in general is measured by five items (see Table 4.) that have been shown to be accurate indicators of customer Artificial intelligence in the hotel industry literature (Araujo, T., Helberger, N., Kruikemeier, S, & de Vreese, 2020). In addition, according to (Oliver, 1997) he stated that multi-item measurement has the potential to capture valence and build customer Artificial intelligence.

Table 4. Measurement of Artificial intelligence

Ser.	Attributes
1	Information from artificial intelligence science community is trustworthy
2	Artificial intelligence science community has much influence on society
3	I have very much confidence in the artificial intelligence science community
4	Artificial intelligence is contributing to unemployment in my country
5	Banks should use AI for services

Sources :Adapted from (Bokhari, S. A. A., & Myeong, S., 2022)

3.8.3. Social Innovation

Although the concept of social innovation has been around since the late 1990s, there are examples that go back more than a century ago (Dart, 2004). As a result of the increasing focus on market, customer, income, commercial and business-like approach, Dart (2004) notes that many social organizations have created hybrid structures that combine non-profit and for-profit activity. As a result, social innovation may be driven by for-profit businesses, non-profit organizations, or a combination of these two types of entities (Lettice, F., & Parekh, M., 2010).

Dart (2004) notes that social institutions are often understood and practiced more narrowly in terms of commerce and revenue generation. So this should be

according to the research problem and the context of the study. In the present work, four components were used to examine social innovation.

Table 5. Social Innovation Measurement Components

Ser.	Attributes
1	Social entrepreneurship works for betterment of the community and not to make profits
2	Social Economy has primacy of the individuals and the social objective over capital
3	Local and regional development helps to raise living standard of the people in urban area
4	Design thinking guides the decision/policy makers to plan the Banks better

Sources :Adapted from (Bokhari, S. A. A., & Myeong, S., 2022)

3.9. Elements of Analysis

A case study's aspects of analysis are the things that make up that study. Organizational, group, and personal factors are distinguished in the decision-making study's parts of analysis (Creswell, 2012; Kumar, Abdul Talib, & Ramayah, 2013).

The main objective of this research is to study influence of Artificial intelligence and social innovation on decision-making. The unit of analysis for this research is the managers in Jordanian banks.

3.10. Data Collection Method

There are a variety of methods that may be used to gather information for a survey, and in this case, a questionnaire was developed and administered to managers at banks in Jordan to collect the necessary information for statistical analysis. According to data collected by the Central Bank of Jordan, there are around 315 managers employed by banks in the capital city of Amman, Jordan (Central Bank of Jordan, 2021).

In this study, we were able to obtain a large amount of data at once due to the strategy we used. The researcher used quantitative measurement methods to double-check his findings and provide context for his findings.

The researcher chose to collect responses using electronic questionnaires for their effectiveness, suitability, faster and shorter time management (Hancock, D, Algozzine, B., & Lim, J. H.,2021).

3.11. The Technique of Data Analysis

For the aim of identifying essential information, forming inferences from data, and assisting decision-making, data analysis is utilized. The data in this study will be analyzed with SPSS version 26.0 by the researcher. It is possible to write a response to this study using SPSS version 26.0 features such as reliability testing and correlation analysis Shahat .

3.11.1. reliability Analysis

The first stage in validating a test is to conduct a reliability analysis (Wells & Wollack, 2003). Items of measurement can be tested for their internal consistency using reliability analysis. Cronbach's alpha reliability coefficients are calculated for the new dimensions used for assessing and testing items in order to adopt this new method of evaluation and testing. In terms of statistics, Cronbach's alpha is a measure of the internal questionnaire's reliability in terms of its questions (Cronbach, 1951). High levels of consistency are indicated by an alpha value near to 1.00, which is the upper limit of Cronbach's alpha's scale (Wells & Wollack, 2003). High-stakes benchmark exams need internal consistency coefficients of at least 0.90, but low-stakes benchmark tests only require internal consistency coefficients of at least 0.80 or 0.85. (Wells & Wollack, 2003). Suggested reliability coefficients are 0.70 or above (Wells & Wollack, 2003). Analysis of reliability less than 0.60 was found to be unsatisfactory according to Sekaran and Bougie's (2010) study; reliability more than 0.80 was considered high. Table 6. summarizes the reliability coefficients for each of the items and used in the study.

Table 6. Summery of Reliability Coefficient

Reliability coefficient	**Remarks**
Less than 0.60	Poor
0.70	Acceptable
0.80	Good
0.90 and more	Excellence

Source: (Sekaran and Bougie's ,2010)

3.11.2. Descriptive Statistics

Each category in the questionnaire may be analyzed in terms of frequency, percentages, mean, and standard deviation by using descriptive statistics (Sekaran, 2001). It's important to employ descriptive statistics because they give an accurate depiction of a person's or group's qualities, such as their views and knowledge. Both the standard deviation and the point mean are used to determine the central tendency and variation in the distribution of values. There were three levels of average score interpretation: low (1-2.99), average (3-5.99), and high (5.00-7:00). This is because the variables were evaluated using a 5-point Likert scale; hence, the average score had three levels: low (1-2.99), average (3-5.99), and high (5.00-7:00). The table below shows 3.8 the Summery of Descriptive Analysis that will used in the study.

Table 7. Summery of Descriptive Analysis

Mean score	**interpretation**
1.00 – 1.99	Low
2.00 – 3.49	Moderate
3.50 – 5.00	High

Source: (Lopes, 2012)

3.11.3. Correlation Analysis

According to prior research (Robert Cavana, Delahaye, & Sekeran, 2001), the association may be found by comparing the variation in one variable to another. As a result, the appropriate statistical procedure is to determine if there is a correlation between two variables (Bewick, Cheek, & Ball, 2003). Correlation coefficient's R-value has three purposes, namely:

1. The correlation coefficient is examined to see if it is statistically significant.
2. To determine the degree of correlation.

Negative or positive correlations might be found between the variables (Hair, Money, Samouel, & Page, 2007)

A complete positive correlation is defined as a value of 1.0 (plus 1), according to studies by Coakes, Amar and Luisa Granados (2010) and Sekaran (2003). Otherwise, a correlation coefficient of -1 would be expected (minus 1). Using the sign of positive and negative indicates the relationship's direction, while its value indicates its strength (Coakes et al., 2010).

3.12. Summary

This chapter is used as a guide in conducting this research, you can begin to achieve your research objectives. At the beginning of this chapter, study design and processes progress from hypothesis formation through questionnaire creation to data collection. In this section, also the specific analysis methods developed for this study. After completing the data collection using the survey questionnaire, the researcher uses SPSS version 26.0 to analyze and interpret the results. In addition, this chapter details the general framework and workflow of the study, as well as research design, measurements, data collection, and analytical processes.

4. RESULTS AND FINDINGS

4.1. Introduction

This chapter is divided into three parts: first, a discussion of the demographics of the respondents; second, a presentation of the psychometric properties of the measurement scales used in the study, including the results of the Cronbach's Alpha Reliability Test; and third, a discussion of the results of the study. Finally, the examination of the research hypotheses is discussed in the third part.

4.2. Response Rate and Demographic Profile

The rate of response and the demographic profile of the respondents are both essential in explaining the implications of the research findings. Therefore, in the present section, the rate of response and the respondent profiles (demographic characteristics) are presented and discussed.

4.2.1. Response Rate

Following three months of data collection and the distribution of 473 questionnaires, 169 questionnaires were retrieved, while the remaining 304 were unreturned. Moreover, 169 were found to be useful for further analysis as in Table 8.

Table 8. Summary of questionnaires distributed

Jordan	Total	Present (%)
Distributed questionnaires	473	100
Usable questionnaires	169	36
Unreturned/incomplete questionnaires	304	64

4.2.2. Respondents Demographic Characteristics

Data about the demographics of the respondents (e.g., gender and age) educational level are presented in Table 9.

Table 9. Frequency and percentage of demographic information

		Frequency	Percent
Gender	Male	103	60.9
	Female	66	39.1
	Total	**169**	**100.0**
Age	Less than 20 years	1	0.6
	21 to 35	62	36.7
	36 to 40	44	26.0
	41 to 50	36	21.3
	More than 51	26	15.4
	Total	**169**	**100.0**
Education	High School	14	8.3
	Diploma	18	10.7
	Bachelor	83	49.1
	Master	36	21.3
	PhD	18	10.7
	Total	**169**	**100.0**
Marital Status	Single	92	54.4
	Married	75	44.4
	Divorced	1	.6
	Widowed	1	.6
	Total	**169**	**100.0**
Income	less than 500	74	43.8
	501 to 1000	46	27.2
	1001 to 1499	26	15.4
	1500 to 1999	12	7.1
	2000 to 2499	8	4.7
	more than 2500	3	1.8
	Total	**169**	**100.0**
How Many Years Have You Interacted With The Bank	Less than 12 Months	36	21.3
	1- 2 years	39	23.1
	2 - 3 years	35	20.7
	3 - 4 years	24	14.2
	More than 5 years	35	20.7
	Total	**169**	**100.0**

Starting from gender, it is evident from the table that in a bank, the majority of the respondents (60.9%) were male, while the remaining (39.1%) were female. According to Figure 4;

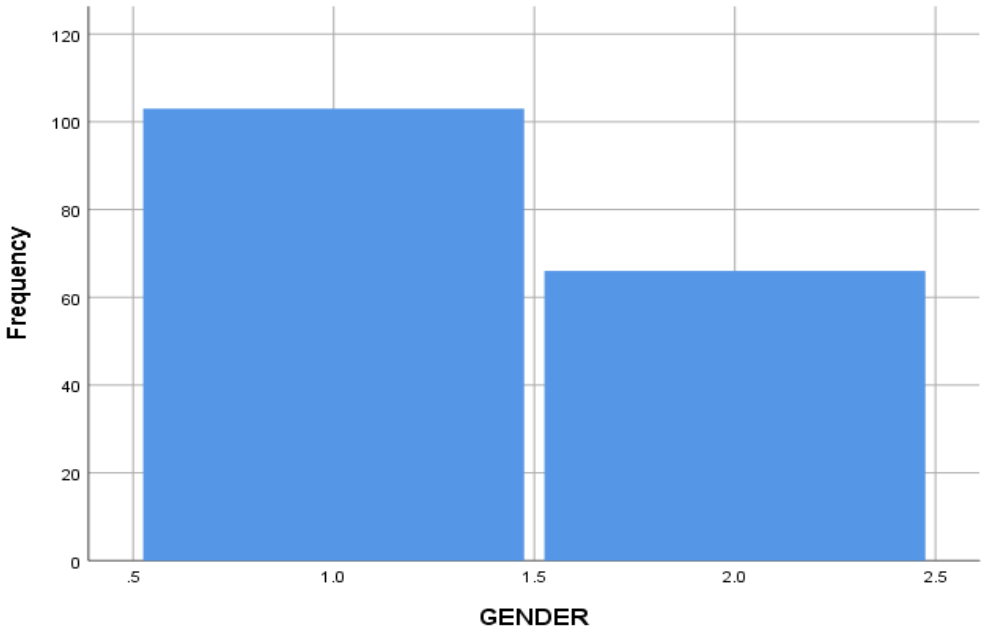

Figure 4. A comparison of the respondents' gender of the survey respondents in the study

About age, it was less than twenty years 0.6%, from 21 to 35 years it was 36.7%, from 36 to 40 years 26.0%, from 41-50 years 21.3% and more than 51 years and over 15.4 %.

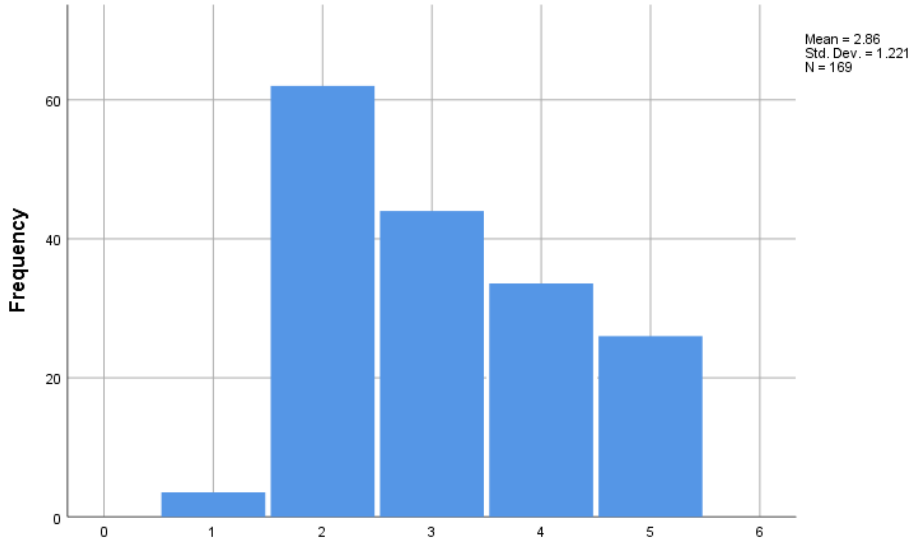

Figure 5. A comparison of the respondents' ages

The results revealed that the research sample included the largest percentage of unmarried people, as 92 individuals represented 54.4 percent of the study sample, and the lowest percentage of widows, as 6 people represented 6.0 %. percent of the study sample.

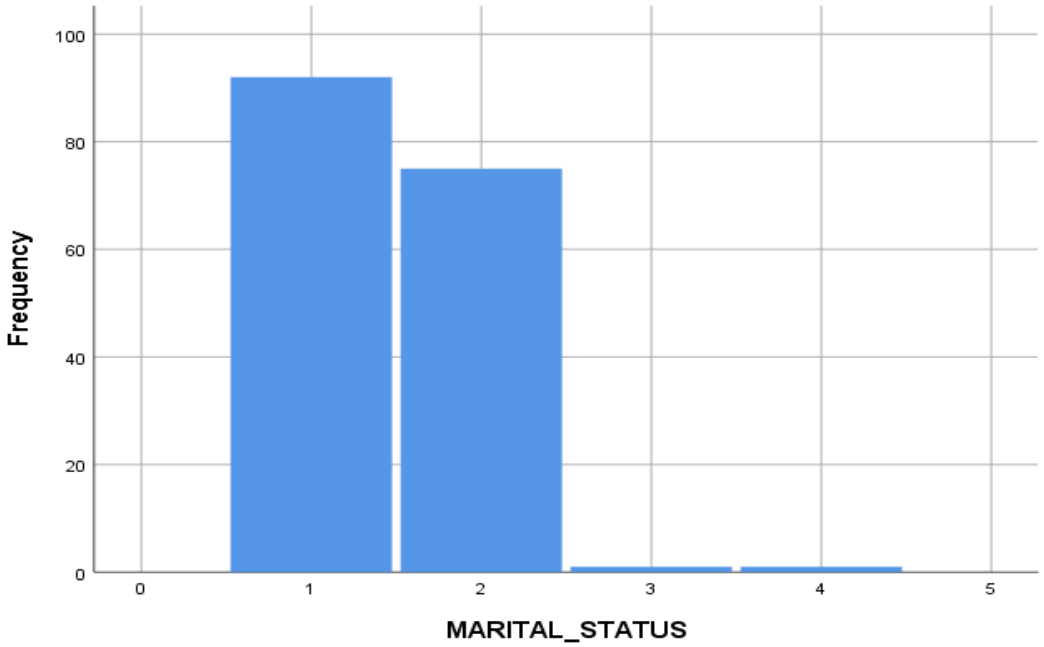

Figure 6. A comparison of the respondents' marital status

Based on the educational level of the bank, respondents mostly (49.1%) obtained a first university degree, while the least (8.3%) obtained a high school diploma, while the percentage of those holding a master's degree was (21.3%), and those who completed a doctorate degree were (10.7%)

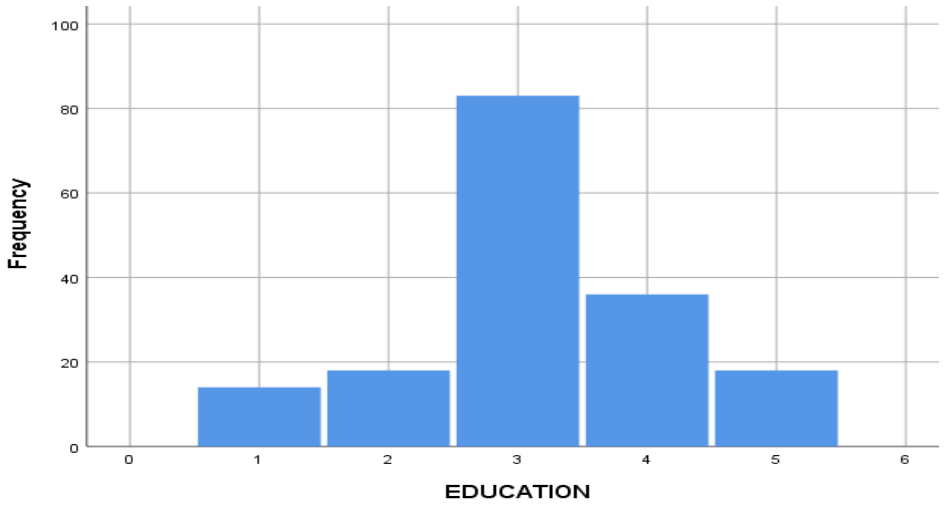

Figure 7. A comparison of the respondents' education level

The results revealed that the research sample included the highest percentage of monthly income of more than 2500 Jordanian dinars, represented by 3 individuals, representing 1.8% of the study sample, and the lowest percentage of monthly income was 500 Jordanian dinars, represented by 74 individuals, representing 43.8% of the study sample, respectively.

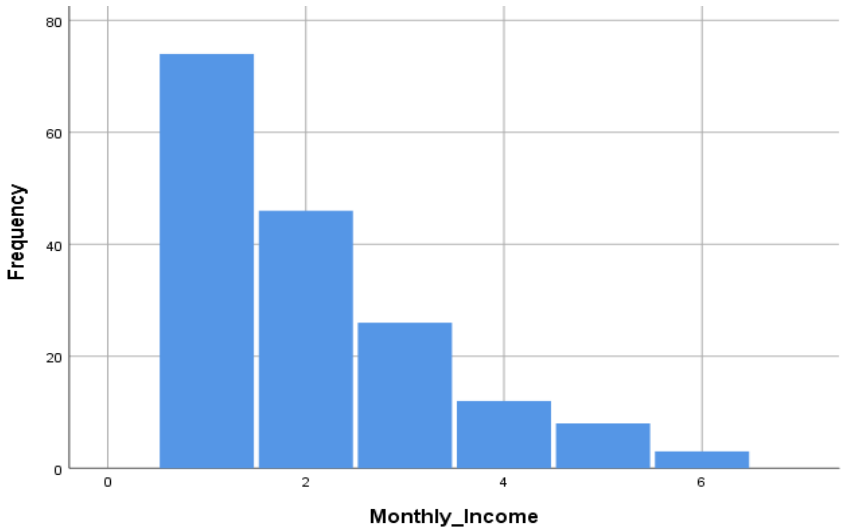

Figure 8. Comparison of the respondents' monthly income

The results showed that the research sample included the highest percentage of managers with banks in years from 1 to 2, and their number was 39 people, representing 23.1% of the study sample, and the lowest percentage of managers of the lowest banks was from 3 to 4 years, and their number was 24 people, and 14.2% from the study sample.

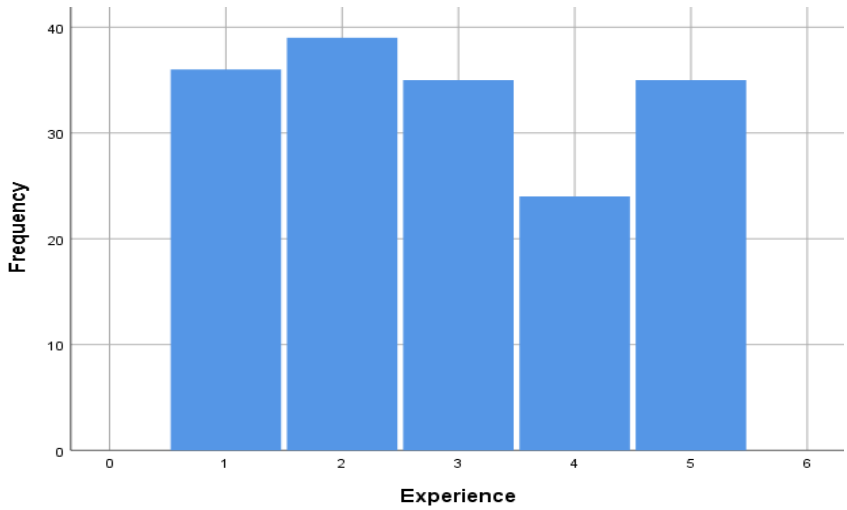

Figure 9. Comparison of the number of years of managers to respondents

4.3. Reliability Analysis

According to Sekaran (2010), reliability test is used for the measurement of the variables consistency and stability, with the main tool for the test being the Cronbach's alpha. A Cronbach's alpha coefficient that is near to 1.00 shows better data reliability, one that is less than 0.70 is deemed as poor, while one that is higher than 0.80 is deemed as good (Sekaran, 2010). The reliability analysis report is in Table 10.

Table 10. The stability of the instrument Cronbach's alpha for the variables in Jordan

NO	Study Variables	No. Of Item	Cronbachs Alpha	Remarks
1	Decision Making	5	0.937	Excellence
2	Artificial Intelligence	5	0.926	Excellence
3	Social Innovation	4	0.930	Excellence
Total		14	0.962	Excellence

In Jordan banks, the variable reliability analysis for this case is presented in Table 10. It is clear from the table that the decision-making process (the dependent variable) got the Cronbachs alpha coefficient of 0.937, while artificial intelligence (the intermediate variable) got an Cronbachs alpha coefficient of 0.926. As for the independent variable, it has the following alpha coefficients; Social innovation (0.930). The decision-making coefficient (0.937) is considered excellence, which indicates the accuracy of the decision-making process. For the median variable AI, an Cronbachs alpha coefficient of 0.926 is considered an excellence result. While the coefficients of the independent variable are 0.930, it is considered an excellence result.

4.4. Normal Distribution

One of the following graphs shows the study's variables in a normal distribution. 4.7: Artificial intelligence

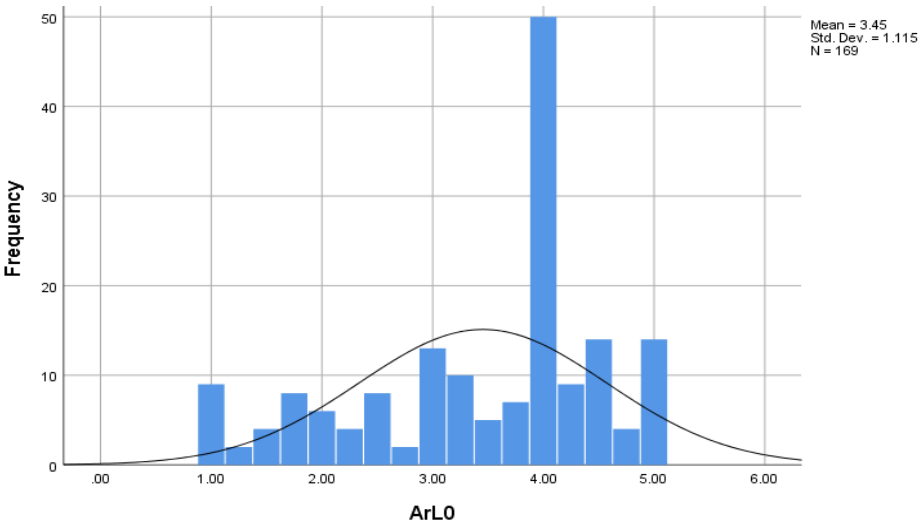

Figure 10. Social Innovation

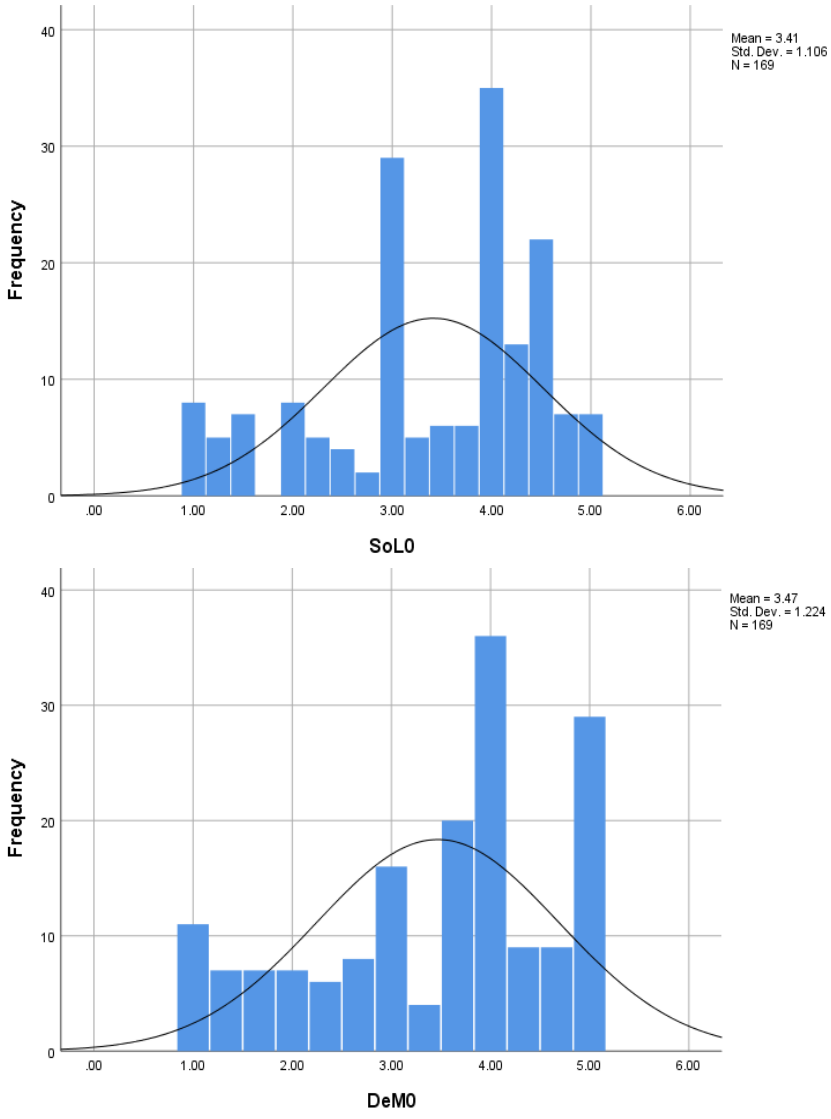

Figure 11. Decision making

4.3. Factor Analysis

Based on the results of the "Bartlett" (KMO) test table, we may conclude that the "On" scale value is more than (0.945). than (0.5) This shows the increasing reliability of the factors that we get from factor analysis, as well as to judge the adequacy of the sample size, as we find probability value (P-value) of "Bartlett" test equal to (0.00) and is less than (0.05) this means that the correlation matrix is not equal to the matrix unit and that there is a link between some of the variables in the matrix, so it can make a global analysis of the data.

Table 11. The following table "Kaizarr Mir UConn" measures to judge the adequacy of the sample and test "Bartlett" of the data.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.945
Bartlett's Test of Sphericity.	Approx. Chi-Square.	2323.883
	Sig.	.000

4.5. Descriptive Finding

The findings of the descriptive analysis are summarised in this overview of respondents' views. variables was obtained to confirm their validity and reliability. More specifically, descriptive analyzes were performed on the complete measurement constructs for decision-making, (artificial intelligence, social innovation) and the results are presented in Tables 12, 13, and 14. Scores less than 1.99 were considered low, while scores higher than 3.50 were considered high. Values between (2.00 and 3.49) were considered moderate or neutral (Lopes, 2012).

Table 12. Results for Decision-making

No	Items	Code	No	Minimum	Maximum	Mean	Std. Deviation
1	Jordanian banks are using new technologies instead of using old methods of decision making;	DeM1	169	1	5	3.49	1.337
2	Jordanian banks collect a lot of data about any opportunity that arises to make a better decision for the public	DeM2	169	1	5	3.46	1.336
3	Whenever Jordanian banks face a difficult situation, they are optimistic about finding a good solution for the public;	DeM3	169	1	5	3.46	1.341
4	Jordanian banks are studying all available alternatives for decision making.	DeM4	169	1	5	3.51	1.341
5	Jordanian banks do not delay making a decision for the public whenever the need arises before it is too late;	DeM5	169	1	5	3.45	1.300
Decision-making			**169**	**1.00**	**5.00**	**3.4675**	**1.22438**

From Table 12, range, decision-making in Jordanian banks ranges from 3.45 to 5.46, with the highest "**DeM4**" level (5.46 ± 1.341), and the lowest "**DeM5**" level (3.45 ± 1.300).

Table 13. Results for Artificial Intelligence

No	Items	Code	No	Minimum	Maximum	Mean	Std. Deviation
1	Information from artificial intelligence science community is trustworthy;	ArI1	169	1	5	3.44	1.337
2	Artificial intelligence science community has much influence on society;	ArI2	169	1	5	3.46	1.336
3	I have very much confidence in the artificial intelligence science community;	ArI3	169	1	5	3.41	1.341
4	Artificial intelligence is contributing to unemployment in my country;	ArI4	169	1	5	3.38	1.341
5	Banks should use AI for services.	ArI5	169	1	5	3.56	1.300
Artificial Intelligence			**169**	**1**	**5**	**3.4527**	**1.11536**

From Table 13, range, artificial intelligence in Jordanian banks ranges from 3.38 to 5.41, with the highest "**ArI5**" level (5.41 ± 1.341), and the lowest "**ArI4**" level (3.38 ± 1.341).

Table 14. Results for Social Innovation

No	Items	Code	No	Minimum	Maximum	Mean	Std. Deviation
1	Social entrepreneurship works for betterment of the community and not to make profits;	SoI1	169	1	5	3.36	1.337
2	Social Economy has primacy of the individuals and the social objective over capital;	SoI2	169	1	5	3.38	1.336
3	Local and regional development helps to raise living standard of the people in urban area;	SoI3	169	1	5	3.45	1.341
4	Design thinking guides the decision/policy makers to plan the banks better.	SoI4	169	1	5	3.46	1.341
Social Innovation			169	1.00	5.00	3.4127	1.10639

From Table 14, range, social innovation in Jordanian banks ranges from 3.36 to 5.45, with the highest "**SoI4**" level (5.45 ± 1.341), and the lowest "**SoI1**" level (3.36 ± 1.337).

Table 15. Summary of Descriptive finding

No	variables	N	Minimum	Maximum	Std. Deviation
1	Decision-making	169	1.00	5.00	3.4675
2	Artificial Intelligence	169	1.00	5.00	1.11536
3	Social Innovation	169	1.00	5.00	1.10639

4.6. Pearson Correlation Analysis

In this study, the significance of the bivariate linear relationship between the independent variables of the dimensions of artificial intelligence (social innovation)

and the dependent variable for decision-making was measured with the help of Pearson's correlation analysis. Tables 14 and 15 present the results of the analysis in Jordanian banks. Correlation analysis was performed mainly to determine the degree to which each independent variable correlates with the dependent one.

Table 16. Pearson's Correlation Analysis of Variables

	Decision-making	Artificial Intelligence	Social Innovation
Decision-making	1		
Artificial Intelligence	.823**	1	
Social Innovation	.665**	.784**	1
**. Correlation is significant at the 0.01 level 2-tailed			

This study used the rule of thumb proving that R values of 0.10, 0.13 and 0.50 indicate that all correlation coefficients in the table are positive and meaningful. In particular, artificial intelligence and social innovation (the independent variables) all recorded positive and significant relationships (the dependent variable).

With regard to the relationships between the independent variables and the dependent variable, the following results showed, artificial intelligence with decision-making at (r = 0.823), social innovation with decision-making at (r = 0.665).

All correlation coefficients were found to be positive and significant. In other words, the independent variables correlate with the dimensions of AI (social innovation) positively and well with decision-making (a dependent variable). All independent variables were also positively correlated at the 0.01 significance level, with the highest correlation between artificial intelligence on decision making ($r = 0.823$, $p < 0.01$) and the lowest between social innovation and decision making ($r = 0.665$, $p < 0.01$). Brief All variables in Jordanian banks are positively correlated with each other and with each other.

4.7. Hypothesis Testing Result of Direct Relationship of Variables

In the intended model, the hypotheses were evaluated using three metrics: the significance of correlation coefficients (R), the coefficient of determination (R2), and, finally, the multiple regression (Beta).

The potential correlations that were taken into consideration varied from plus one to minus one, and according to a general rule of thumb, r values of 0 to 0.2 are regarded to be weak, 0.3 to 0.6 are considered to be moderate, and 0.7 to 1 are considered to be high (Brace et al., 2000). The coefficient of determination, often known as R2, is a statistical measure that determines the extent to which one variable can be explained by the behaviour of another variable given its value. It evaluates the accuracy of one's ability to draw conclusions based on a certain model or graph. Last but not least, in terms of multiple regressions (beta), this metric determines the extent to which each group of predictor factors (independent variables) has an impact on the criterion variable (dependent variable). It is feasible to evaluate hypotheses or models pertaining to the manner in which a given group of factors impacts behaviour by using the multiple regression analysis. The correlation coefficient R2) is used to quantify the link between two variables, while multiple regression is used to test the relationship between a group of variables and a single variable. On the other hand, the linearity between variables may be determined by looking at the coefficient (R2). In the current investigation, the value of r was investigated with the assistance of the Pearson Correlation Coefficients that were computed for variable pairs. This was done to validate the importance of the correlation coefficients. In relation to this, the value of Beta may be determined by using the technique of linear regression analysis. The findings gained from the first major round of testing the hypothesis are shown in Table 4.16. If we are to believe the first hypothesis:

H1: Artificial intelligence, and social innovation, are positively correlated with decision-making in Jordanian banks.

Table 17. The results of applying regression, artificial intelligence, and social innovation are positively correlated with decision-making.

Variables	B	t	Sig.	R	R Square	F	Sig.
Artificial Intelligence	.841	11.061	.000	.824[a]	.679	175.257	.000[b]
Social Innovation	.054	.713	.477				

a. Dependent Variable: DeM

Based on the results shown in the table (Table 17), there is a direct statistically significant relationship between artificial intelligence and social innovation at a significance level (p = 0.05). The results showed that the correlation coefficient (R) equals 0.824, the correlation coefficient (R2) equals 0.679, and the test value (F) is 175.257. Thus, the hypothesis is accepted.

4.8. Summary of Findings

Table 18. Summary of Hypotheses

The Hypotheses	**Result**	
H1	There is a positive relationship between artificial intelligence and decision-making	**Supported**
H2	There is a positive relationship between social innovation and decision-making	**Supported**

In sum, all the study hypotheses are supported, confirming the acceptability of the study's proposed model. Summary of hypotheses indicated that h1, and h2 had shown a statistically significant and positive association with the variable of interest. In conclusion, all the study hypotheses are validated, hence supporting the acceptability of the model suggested in the research.

4.9. Conclusion

In this chapter, the proposed hypotheses for Chapter Four are examined. Analyses such as a frequency table, descriptive analysis, and reliability and validity checks were conducted using SPSS V.26 for this study. This chapter explains the proposed approach to analyze the performance of relevant indicators and highlight the impact of AI and social innovation on the decision-making process. All of the posited assumptions were validated, and the results confirmed the influence of AI aspects on decision-making.

DISCUSSION AND CONCLUSION

Results for the hypothesis tests proposed in chapter three were reported in the preceding chapter. In this chapter, the data collected are explained in accordance with the four research questions presented in the first chapter in order to meet the thesis objectives. The findings are discussed in connection to the ideas that explain them, based on the research results and preceding findings presented in the literature. Limitations and suggestions for further research are also included in the chapter.

Recapitulation of the Study

The objectives that this study attempts to reach are:

To determine the impact of artificial intelligence in Decision Making in Jordanian banks.

To determine the impact of Social Innovation in Decision Making in Jordanian banks.

The survey method was used, where the sample was selected through the probability sampling technique in this study, where information can be collected from managers in Jordanian banks from the data they volunteered through the questionnaire. Accordingly, 473 questionnaires were distributed in Jordan, after which 169 questionnaires were retrieved, respectively. The final virtual model was tested for its reliability and validity.

Based on hypothesis testing, the results supported **H1**. Artificial intelligence has a positive influence on decision making in banks. The results also supported **H2**, Social innovation contributes to decision-making positively in banks.

The Relationship Between the Construct Variables

Artificial intelligence is one of the most significant considerations when it comes to making decisions, especially when it comes to Jordanian banks. To summarize findings linked to hypotheses about links between exogenous and endogenous factors, the researcher presents a summary of findings in the following

parts. There are several implications that need to be clarified after doing hypothesis testing.

Outcome talks focus on a specific set of variables and their impact on the outcome (artificial intelligence, social innovation, and decision making). Finally, the study discusses the influence of AI on Jordanian bank decision-making.

The Relationship Between Artificial Intelligence, Social Innovation and Decision-Making

The first hypothesis suggested a influence positive between AI and decision-making, and the result supports it with a high degree of ($\beta = 0.841$). Similarly, the same hypothesis also suggested a influence positive between social innovation, decision-making and the outcome it supports ($\beta = 0.054$). The above indicates that artificial intelligence and social innovation are the most important predictors of decision-making among bank managers.

Theoretical Contributions

Systems with digital system components, which in turn has a significant impact on the decision-making process. Because of this, academics in the social sciences who study the banking industry are in high demand to study the effects of AI on human decision-making and provide insights that can improve both the efficacy and theoretical development of AI programs (Duan, Y.; Edwards, J.S.; Dwivedi, Y.K, 2019). In addition, this research seeks to isolate any hidden factors that may have a positive or detrimental impact on the decision-making process when AI is involved. This research intends to fill that gap by identifying, evaluating, and exploring AI's place within this wider area of study. Several prior studies have uncovered a correlation between artificial intelligence and sound judgment. (Howell, D.C, 2012;Chinchanachokchai, S.; Thontirawong, P.; Chinchanachokchai, P. 2021.; Panichayakorn, T.; Jermsittiparsert, K,2019).

The purpose of this investigation is to ascertain if and how banking decision-making is affected by the convergence of AI and social innovation. We have provided empirical data to demonstrate the existence of this correlation and its robustness in the

literature. First, we found significant support for the premise that AI and decision-making are intrinsically linked. When conducting this research, the authors relied on SPSS and regression analysis to ascertain the quality and importance of these connections.

Innately good and considerably beneficial. Financial institutions rely on Internet-connected software and hardware. It's encouraging to see them impacted by AI data from sensors and other sources. In addition, the second hypothesis anticipated that social innovation would have an immediate impact on the way choices were made. An empirical study confirmed our findings.

Managerial Implications

Bank executives should take note of the study's findings. Given that we focused on the banking industry in Jordan for our study. Banks with a large customer base in this or other nations may benefit from this research more than smaller institutions and communities owing to differences in factors such as access to resources, technology, social inclusion, political influence, and so on. The primary focus of this investigation is the application of AI to the decision-making process. Therefore, we have placed an emphasis on the elements that contribute positively and considerably, so that local bank managers may take them into account when making policies and public decisions. These days, it's impossible to imagine a bank without computers, which have become an integral part of the institution's infrastructure for collecting data and making decisions to enhance governance.

This study's findings and conclusions should be taken with care due to its many flaws. The first possible flaw in our poll is its very modest size. There have been numerous studies before ours, but we think a greater sample size might provide different results. Meanwhile, we were making every effort to shield the participants from any outside influences of a political, administrative, or social kind. Finally, this poll was carried out in both established and up-and-coming financial institutions, with the vast majority of its respondents holding college degrees and professional expertise. If the sample is selected at random from some other interruptions, the findings can be different.

Limitations

In order to be effective, the research endeavor must be able to recognize its shortcomings. That this thesis contributed to the marketing literature; However, it is only effective when these contributions are accompanied by a discussion of their limitations. This study focuses on the possibility of future research. In the following paragraphs, we will discuss some of the limitations.

First and foremost, my thesis was based on a small sample of managers in Jordanian banks. As a result, bank executives in this time frame may find the results useful. According to Sheth and Parvatiyar (1995) and Arnold and Bianchi (2001), managers' perceptions of relationships may be influenced by cultural conditions. For this reason, care must be taken when circulating the results of the message, because it may represent the viewpoint of the management of banks in Jordan.

It is also limited by the research paradigm, which includes artificial intelligence, social innovation, and decision-making as factors. The results may not be representative of the main factors for all banks if participants' impressions are limited to Jordanian banks.

Jordanian banks' use of AI is limited due to the difficulty in obtaining data relevant to the Jordanian environment, which is the last limitation. Although many banks refused to send the questionnaire to managers in Jordan, after several attempts with the management of the bank, they decided to publish the questionnaire to a limited degree only in the city of Amman.

Recommendations For Further Research

In view of the above limitations, further empirical research is necessary to expand the scope of the study. It is possible to add to and build upon the existing research framework in order to improve results and overcome limitations. AI research agents can be used in a variety of industries, including hospitals, restaurants, airports, and government institutions, to examine their impact on decision-making. Future research may contribute to a better understanding of the concept using a different technology. Future research, for example, may explore the trust function in other service environments to discover whether the results can be applied to other premium

service providers in a similar manner. It may be possible to make comparisons between premium services and other services as AI may play a vital role in the future.

Conclusion

It's safe to say that AI has found applications in many different fields. As a result of advancements in big data, algorithms, and computing power, AI systems are already commonplace in digital infrastructure and have a major impact on how humans make decisions. Thus, researchers in the social sciences and information systems are increasingly needed to investigate and comprehend the results of decision-making and their role in the development and success of AI technologies in the classroom and in the lab. This research intends to fill this gap by analyzing and highlighting the curative role that social innovation plays in the dynamic between AI and decision-making. In this paper, we provide four research hypotheses concerned with the role of social innovation as a mediator between artificial intelligence and the decision-making process. Using multiple regression analysis in SPSS, we find that AI's use of big data derived from sensor deployment has a substantial impact on both social innovation and banking sector decision-making. Moreover, social innovation has been shown to have a crucial mediating function in the relationship between artificial intelligence and sound judgment. Although this research focuses primarily on the use of AI for decision-making and mediation in social innovation, the hypotheses presented here may be used to inform studies of AI's broader application and impact, as well as the impact of AI on decisions across industries.

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LIST OF TABLES

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APPENDIX

RESEARCH QUESTIONAIRES

Dear Respondents,

You are invited to participate in this survey about **ARTIFICIAL INTELLIGENCE AND ITS IMPACT ON DECISION-MAKING IN JORDANIAN BANKS**

(A FIELD STUDY IN AMMAN). This research is the fulfillment of completing my Master of Business Administration from Karabuk University, I would appreciate it if you could spare some time and think about completing the survey. I hope that you would co-operate in completing the questionnaire to the best of your ability. This questionnaire consists of third parts/sections. Part one consists of questions about your demographic profile; continue with part two about **Decision Making**, and the third part about dimensions of **ARTIFICIAL INTELLIGENCE (Decision-making, Artificial Intelligence, Social Innovation).** All information provided in this survey will no means reflect the identity of the participants. It will be kept strictly confidential and will be used merely for academic purposes.

SECTION A: Demographic

1. GENDER

Male	Female

2. Age

20–35	36–50	41- 50 years

3. MARITAL STATUS

Single	Married	Divorced	Widowed

4. EDUCATION

High School	Diploma	Bachelor	Master	PhD	Others

5. EMPLOYMENT STATUS

Student	Student Worker	Self-Employed	Employee	Retired	Unemployed

6. MONTHLY INCOME

< 500$	500$ - 1.000$	1.001$ - 1.500$	1.501$ - 2.000$	2.001$ - 2.500$	> 2.500$

7. HOW MANY YEARS HAVE YOU WORKED IN THE BANK?

Less than 12 Months	1- 2 years	2 - 3 years	3 - 4 years	More than 5 years

SECTION B: DECISION-MAKING

No.	Items	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
1	Jordanian Banks are using new technologies instead of using old methods of decision making;					
2	Jordanian Banks collect a lot of data about any opportunity that arises to make a better decision for the public;					
3	Whenever Jordanian Banks face a difficult situation, they are optimistic about finding a good solution for the public;					
4	Jordanian Banks are studying all available alternatives for decision making.					
5	Jordanian Banks do not delay making a decision for the public whenever the need arises before it is too late;					

SECTION C: ARTIFICIAL INTELLIGENCE

No.	Items	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
1	Information fromartificial intelligence science community is trustworthy;					
2	Artificial intelligence science community has much influence on society;					
3	I have very much confidence in the artificial intelligence science community;					
4	Artificial intelligence is contributing to unemployment in my country;					
5	Banks should use AI for services.					

SECTION D: SOCIAL INNOVATION

No.	Items	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
1	Social entrepreneurship works for betterment of the community and not to make profits;					
2	Social Economy has primacy of the individuals and the social objective over capital;					
3	Local and regional development helps to raise living standard of the people in urban area;					
4	Design thinking guides the decision/policy makers to plan the Banks better.					

CURRICULUM VITAE

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