



Article

Does Emotional Intelligence Contribute to Quality of Strategic Decisions? The Mediating Role of Open Innovation

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Abstract: Purpose—The purpose of this research is to explore the direct relationship between the emotional intelligence of top management and the quality of strategic decisions they take for their companies. This relationship is further examined by the mediating role of open innovation in the context of intelligent information systems that can impact the way top managers take decisions. This research adopted a survey design as cross-sectional data were taken through questionnaires from top management of the UAE national banks. A final sample size of 213 questionnaires completed by managers was obtained and analyzed. As predicted, there was a strong, positive relationship between managers’ emotional intelligence and the quality of their strategic decisions. Open innovation has revolutionized the way top managers of banks take decisions that are later transformed into policies. Decision-makers are required to possess the skill of decision-making by being vigilant of their surroundings. Hence, they have emotional intelligence and intelligent information systems (IIS) only enhances the trait. IIS is the glorified version of open innovation that further contributes to the decision-making process and the quality of decisions. This research is one of a kind as no one has explored these dimensions of emotional intelligence in the UAE.

Keywords: emotional intelligence; open innovation; intelligent information systems; quality of strategic decisions; UAE’s national banks



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1. Introduction

Today, the most debatable discussion of the knowledge societies is the mental capacity of human minds and how they intervene in the daily routine of life. The heads of the organizations are CEOs and managers. They make strategies by making decisions for the sole purpose of success for the organization. The decisions happen with the mutual consent of all members of the decision committee. In the case of a single boss, s/he is responsible for the effects of decisions taken for the organization and implemented by members of that organization [1]. Leadership power can be obtained only by the strength of decision-making, which is directly dependent on the leader’s emotional intelligence. Basically, emotional intelligence is an essential tool for leadership because the leader’s job is to ensure they make result-oriented decisions and turn them into strategies for the organization [2]. Emotional intelligence supports the whole system of an organization, starting from managers’ performance to overall company performance. The performance could only be result-oriented if the decision-makers are in full control of their feelings and emotions and can carry out the opportunity when it presents itself [3]. When managers or decision-makers know that all their decisions are monitored and accountable for those decisions’ outcomes, then emotional intelligence comes in handy, rather than being a negative trait [3].

Banks have proven to be the most disciplined sector in terms of their employees and other factors of production. All information regarding any aspect of the organization is essential [4]. But how to utilize the said information in a manner to form strategic policies

is the real question. A new concept has entered the business market and has captured the attention of multinational corporations. The concept is of open innovation, which means the new era of information and data. This era presents technology in the easiest accessible way that is safe and confidential [5]. “Intelligent information systems” (IIS) is just one form of open innovation. Today IIS is being adopted by the world. The UAE is no stranger to when it comes to new technology that could improve and change the whole idea of business decisions and strategies. Open innovation gives managers access to the ease of decision-making and relieves them from the stress of decision-making [6]. OI is an information research setup that helps to organize the information and filter out only what is required in a certain situation. IIS is a form of OI that is a specific information technology, especially regarding employees and maximization of their performances through keeping track of their workings [6].

In this research, we consider the importance of the decision-maker’s emotional intelligence in the banking sector of the United Arab Emirates (UAE). Because the person’s mental state is not adequate according to the circumstances, then the results of the decisions would be drastic and be dangerous rather than putting the organization on the path of success. We have considered the importance of emotional intelligence in taking strategic decisions in this research and researched the contributions of emotional intelligence towards making the decisions.

Emotional intelligence has become an essential factor for organizations’ effectiveness around the globe, and many studies were carried out to link its importance to organizational effectiveness and its productivity [7]. Moreover, this era of advanced technologies has narrowed the gap between accuracy and perceptions. IIS emerged a few decades ago and became the center of attraction due to the boom in the software industries and advanced information systems technologies. Using artificial intelligence, robotic management information systems, experts system based on the principle of intelligent information systems brought effective decisions made from the top stages at government levels to the small shops around the corner of the states or economies [8]. There are companies whose environments are information-oriented that usually rely on the internal and external data of the company. The data provides relevant information to make the managers’ job easier in making day-to-day or strategic decisions for the company. These data could be analyzed by humans, and yet, many companies follow a manual pattern. However, this leaves a huge gap between strategic, result-oriented decisions and simple fluke decisions. To handle and manage information data, open innovation comes in handy in the form of intelligent information systems [9].

Companies cannot fully rely on technology as, at the end of the day, the top management of the companies must make decisions for the growth and betterment of their organization. This can only be done if they are aware of all the happenings around them regarding their company. In addition, they must be fully in charge of their emotions and not let their emotions get the better of them. This is why emotional intelligence is the key to making decisions [10]. Organizations have been working and based on knowledge and information, but they have always struggled with managing the information to make policies for the company, but today with new technology and innovation, managing the information has become increasingly easier and handy for everyone. Human resources of organizations are using open innovation techniques and have developed IIS into their setup [5].

Several researchers and practitioners like [11–14] claimed that emotional intelligence could be trained and developed. At the level of the workgroup, [15] stated that emotional intelligence was closely associated with harmonious relationships among workers. The control of self-emotion helps the effective management of disruptive emotions and impulses or the buffering of negative emotion in favor of mood enhancement. Reference [16] addressed that this harmony was the basis of synergistic sharing of skills within groups whose performance surpasses that of other groups with similar technical skills, but fewer social skills. In another study, [15] discussed that emotional intelligence was directly related

to workgroup cohesion, which was closely related to superior TMT performance [17]. Managers often make decisions that are influenced by their emotions. Having good levels of emotional intelligence can protect them from the anxiety they experience when making decisions. Studies have shown that understanding the source and relevance of emotions influence how much sway they have over the quality of managers' decision-making [18].

Being emotionally intelligent means being both highly conscious of your own emotional states, even negativity, frustration, sadness, or something subtler and identifying and managing them. When making decisions, what counts is learning to identify the roots of your emotion and paying attention only to those feelings that are relevant to the decisions being made. Emotionally intelligent people are also specially tuned in to the emotions others experience. It is easy to see how sensitivity to emotional signals from within and from the social environment could make one a better manager. Fortunately, these skills can be learned, trained and honed.

The study mainly focuses on the relationship between emotional intelligence and decision-making powers. Open innovation in the form of IIS shows the mediation between the said relationship to strengthen the quality of decisions. The main goal of this study is to ensure that technology, when used appropriately like in UAE banks, can do wonders. This study contributes to the theoretical literature as very few studies have focused on the mediation role of OI (IIS). In addition, in practicality, this study benefits not only the banking sector but also companies who are inclined and adoptive towards technologies. We used primary data collected from managers of the banks in the UAE. We chose managers as our targeted sample because, in banks, the decisions are controlled and made by the managers of the branch. In this study, we have also tried to explore the effectiveness of open innovation by considering its feature, IIS, in the banking sector. The banking sector is one of the most advanced sectors of all, as, despite the competition, banks do not mind having a one-line system with each other (i.e., a harmonious system, in which all banks can be on the same network and can access some of the facilities of one another).

1.1. Research Questions

The main concern of organizations is to make decisions productive enough to convert them into policies and strategies for the company. What impacts the quality of these decisions is a hot topic of today's recent research. Strategic decisions in the banking sector require a high level of concentration by the decision-maker and carry high levels of risk of lack of attention. The psychological state of the decision-maker plays an important role in the decision-making process, while emotional intelligence helps the decision-maker to take an effective decision by considering all pros and cons [16]. Moreover, advanced and automated information systems in banking provide the decision-maker with relevant information on-time and online [19]. In addition, this research tries to highlight and focus on the role of emotional intelligence and intelligent information systems on the quality of strategic decisions, using empirical data while trying to provide some statistical evidence on the proposed impact from the banking sector in the UAE. Therefore, this research investigates the impact of emotional intelligence on the quality of strategic decisions and examines the mediating role of intelligent information systems in this relation of the national banks in the UAE. Studying the relationships among these three variables in the banking sector—especially in the UAE as an emerging market—can expand the knowledge and narrow the gap and help find the answers to many questions in this domain. From the crux of the above discussion, we have tried to answer the following research questions in our research:

1. RQ1: How does the emotional intelligence of decision-makers impact the quality of decisions for the organization?
2. RQ2: What is the role of emotional intelligence in making strategic decisions?
3. RQ3: How does open innovation in the form of intelligent information systems interfere with the relationship of emotional intelligence and strategic decisions? Moreover, is this interference positive or negative?

For this research, we have chosen the banking sector in the UAE.

1.2. UAE's National Banks

The banking system of any state/country determines its economic level. A strong banking system means that the money is in circulation among the public and the government. This circulation is regulated by banks (financial institutes) of the country. Like all other countries, the UAE is also an economic-oriented country with a very influential banking system. There are more than forty (40) commercial banks, of which twenty-two (22) are national (owned by the government), and others are private or foreign banks from all around the world with their branches working in the UAE. Not only this, but because UAE is an Islamic country, UAE banks have also started their way into Islamic banking. As a business-oriented nation, UAE has developed its assets from AED 123 billion to AED 1041 billion. This has caused the GDP to reach new levels [20].

For this empirical research and adopted the explanatory, descriptive, and analytical methodologies, a questionnaire was used to collect the data.

2. Literature Review and Theoretical Conceptualization

2.1. Operational Emotional Intelligence

Emotional intelligence is the ability to control or monitor the overwhelming feelings and emotions of a person and redirect them into guidance tools. This controlling ability then becomes a skill of a person [21]. After the development of the human race and their societies into multiple economies, human intelligence and its implications in organizations should be considered at the emotional and intellectual level, where emotional intelligence proves to have a greater effect on organizations' success [22]. Emotional intelligence is the ability of individuals to monitor their own and other people's emotions, differentiate between the negative and the positive effects of emotions and guide someone's thoughts and actions by using the emotional information gathered [22]. Emotional intelligence can also be viewed as the ability of individuals to clearly see the absolute truth so they can understand and control their own emotions while responding as well as receiving responses from others. Moreover, it can be seen as the ability of individuals to respond consistently as they recognized their own and others' emotional reactions. This then allows moderate negative emotional reactions to remain positive [4].

Individuals with knowledge of emotional intelligence can have several characteristics. First, they are more flexible, creative, and active in social relations and can maintain motivations. Second, the intelligent use of emotions gives individuals the ability to make accurate decisions since they are self-aware of their power and limitations, which is why they are more confident [23]. Emotional intelligence could be categorized into four dimensions: self-awareness, self-management, social awareness, and relationship awareness. In this research, we concentrate on only three. Due to the time limitations, social awareness is not considered in this study; it might be taken in future studies [4]. When it comes to making decisions regarding any business, usually, one may believe that an older, more experienced person can make a better decision because he knows more than a young person who has just entered the market, many years after the former [24]. The authors in [24] argue that this is not the case because an older person can have less emotional control than a young person. Hence, the odds of making a better decision are with a young person with more emotional intelligence and control. In this case, emotional intelligence is declared more important than professional experience.

2.1.1. The Relationship between Emotional Intelligence and Quality of Strategic Decisions

The control of emotions and intellectual skills for making decisions is crucial for every decision-making party. Emotional intelligence is not just about one's self but also the awareness of one's surroundings and the people in it. Before taking any decision, all these factors must be considered [25], else the after-effects of the decisions would be predictable and controllable if they go the other way. The span of intelligence is constant with age; the

opposite is true in the case of emotional intelligence, in which younger people are more likely to take better and rational decisions than older people [24]. In this research, our target sample is the top management of commercial banks in the UAE. As [25] argues, for the success of any organization, its leaders need to be vigilant before making any decision and then convert that decision into the organization's strategic policy. The results of such decisions depend highly on the quality of those decisions. The quality is based on the perfect and wise use of information. To know well and be aware that the information provided to the decision-maker is based on nothing but the truth is the responsibility of the managers in the UAE banks. Only once they have a firm grip over the knowledge, will they be able to make quality decisions that produce results and become strategies [26]. Based on the above arguments, we develop the following supporting hypothesis: [27].

Hypothesis 1 (H1). *Emotional intelligence does not affect the quality of strategic decisions in the UAE's national banks.*

2.1.2. The Relationship between Emotional Intelligence and Intelligent Information Systems

Top management or decision-makers of the organizations must keep in mind that their employees are not their slaves and need to create a strong employer–employee relationship [28]. To ensure that the relationship exists and that it is healthy and strong on both ends, employers have to be emotionally stable. This stability would lead to emotional intelligence, which is the key element of decision-making. Emotional intelligence helps a person to nurture both the personal and professional levels [2]. Today, in the world of IIS, even though the technology has made the functions of organizations much easier, employers still need to ensure that IIS is being used for nothing but positive and productive aspects, which is only possible with an in-depth understanding of the system and emotional competency, i.e., emotional intelligence [28]. Our research is based on the UAE national banks that are highly advanced in IIS, so, naturally, the top management of these banks are supposed to be in charge of making decisions regarding information systems and their usage by the employees. Based on the above review and discussion, we develop the following hypothesis:

Hypothesis 2 (H2). *Emotional intelligence does not affect the intelligent information systems in the UAE's national banks.*

2.2. Open Innovation

Today is a world of innovation through technology. So far, there have been billions of new techniques introduced into business markets to make companies smarter than ever [29]. The world is globalizing with innovation. This innovation comes not only in the form of technology but also in the form of the intellect of mankind to organize the whole company. The main purpose of any organization is to manage all forms of capital. This can only be done if the top manager or decision/policymakers have all the required information through research and development. Companies have even started creating a separate internal R&D department [29]. Companies that are widely spread and have multiple functioning branches worldwide must have great amounts of data/information about the whole company from their employees and their performances to finances. This is why such huge companies are known to be open towards adaptation of innovation in any form to make their daily life easier and efficient [30]. Human management cannot handle sensitive information; there is always a risk of knowledge leakage by someone. For tackling such issues, companies have started adopting innovation in the form of intelligent information systems (IIS). IIS provides the benefit of not only managing the information but also filtering out the relevant information at the time of making a specific decision by the management of the company. IIS keeps track of employees' attendance to their performance, from finance payables to receivables. IIS has made companies more efficient in their productivity because they were smart enough towards adopting the innovation [31].

The secret behind the success of an individual or any company is the openness to new ideas, sure. Not every idea would be a success, but the strength to take the leap is what matters. When organizations start accepting the value of innovation and are being open to innovation, problems become solutions [32]. Organizations are becoming more and more vigilant about technology to protect themselves from being the prey of competition. The competition is only won by those who stay up-to-date with technology and are quick to adopt. The same case is with open innovation, which helps in managing the data and information of companies [29]. Company data about their employees is usually handled by human resources, and information regarding the company's decision-making policies is handled by top management. The OI helps in the R&D of the company to regulate the information to make strategic decisions for the better future of the company [29]. One of the advanced forms of OI is IIS.

Intelligent Information Systems

Ever since the world of knowledge economies has become digital and hand-held, technology is advancing at a very fast pace. Starting from information technology (IT), engineers and IT professionals have mastered the art of converting IT into information systems, which is the support system for businesses and organizations. The whole purpose of IS is to gather the data in one place and make it available upon demand. The computer sciences department has made business processes easier and convenient for firms and organizations [19]. The technology has advanced so much so that it has replaced human capital to the most extent and is performing better than humans. Of course, with ease comes complications; such is the case of IS and IIS, but this is a debate for later.

Intelligent information systems are defined as an advanced form of IS via artificial intelligence (robotic and computerized systems). Many companies are adopting IIS, and those who are reluctant to use the technology are being left behind [19]. Companies use IIS for multiple purposes like controlling their data, making sure the performance of their human employees and converting their business into e-business as the expansion and being able to target increasing customers [33]. The basic purpose of IIS is to control the knowledge and data of the company. The whole science behind the controlling of data is knowledge management. Companies have started to invest in knowledge management deeply to keep up with the latest technology and business strategies [34]. Databases are formed to store the knowledge and data of businesses [19]. Keeping the hand-written files for records of businesses is a long-gone case. IIS has a minimal to zero chance of error in their system because IT professionals have even introduced anti-viruses that are installed into IIS and protect them from any technological bugs. Moreover, in the case if IIS is being affected by any of the virus or bug, the system itself will be able to recover without damaging any data. IIS has been majorly used in human resource management as it makes life easier by keeping auto track of employees' attendance, their performance and their quality of work. Not only this, but IIS are helping HR of businesses in recruiting employees [35].

Information systems became an essential part of organizations, where digitalization moved to the heart of our social and professional life. With the boom of information technology, the banking sector had seen a revolution in the past few decades. Today all the banks are using their core systems like software, and international trade has increasingly started relying on electronic transactions [36]. We are entering the era where the banking system has become fully digitalized without the need for paperwork. Many studies determined the reliability of the information system; however, the area of its acceptance and effectiveness has remained greatly unexplored. Hence, we used some of the previous studies, which studied part of the intelligent information systems, to illustrate its effectiveness in decision-making [33]. IIS is a way towards artificial intelligence technology that would be used for sustainability purposes. Just like IIS right now, as it possesses the quality to sustain and maintain the information and knowledge of a company as well practice the information into the implication of better policies for the company [37]. IIS not only

manages the systematic data obtained from the technology but also helps in managing the information shared by employees regarding their experiences and ideas. This way, both employees and employers feel confident that the IIS is biased and positively helpful in decision-making [34].

2.3. Quality of Strategic Decisions

Author [10] discusses how organizations need to follow the new ideas generated by the latest IT development as technology advances. He uses the term “reengineering” to refer to the concept that to allow new ideas into the business, old ideas need to be forgotten, and space must be created to incorporate new technologies. The adoption of the reengineering technique is done strategically. Decision-making is a managerial/leadership ability that one excels in only after making decisions over decisions. The quality of decisions improves with time and experiences, where emotional intelligence is an additional ingredient that helps in easing the process [38]. Decision-making is the process where one needs to decide the next course of actions to be taken, the knowledge that one acquires every day helps to understand the context of the problems or the issues to give the acute judgments. The more relevant information, the more convenient it is to make a decision, but too much information does not necessarily mean that the whole info is completely accurate and has not been manipulated and if the info is all correct still the odds of understanding everything are low [39]. In a financial industry like banks, where all matters are in terms of profit and loss, younger people with more stable emotional intelligence would make their decisions based on smart calculations even after loss, but older people with lower emotional intelligence would become risk-averse [24]. This is because emotionally intelligent people tend to rationalize every outcome, whether positive or negative and cope with it effectively so that history will not repeat itself and also the decision-makers would be more vigilant [40]. Before making a rational decision, there are multiple steps. Such steps include knowing the problem to its core, the purpose of the decision, the decision criteria, the subcriteria, the problem that can effect stockholder and party, who are involved, any other alternative actions that can be considered. Then, after evaluation of the alternatives and allocation of appropriate resources, one can finally evaluate the outcome [39,41], focused on the strategic decision-making process, and highlighted three factors to consider during decision-making, which is the decision-making process, the decision-maker himself, and the decision itself.

These phases are identification, development and selection [10]. Taking strategic decisions is a skill that all decision-makers of any organization must possess. However, this also does not mean that decisions related to the firm or company must only be taken by top management. Instead, it is wise to consider employees’ views [42].

The Relationship between Intelligent Information Systems and Quality of Strategic Decisions

Banks are always among the front runners when it comes to adopting new technologies. The same goes for commercial banks in the UAE when they adopted the latest information systems (IS) and upgraded their IT department. The main purpose of IS is to ensure that the decision-makers are being provided with unbiased and genuine information and the corrupted information is being filtered out. This is why IS is being termed as an intelligent information system (IIS) by IT experts. The IIS possesses the software that helps decision-makers to gather important information from raw data. The software system is also known as a decision support system [43]. The main role of IIS and other information control/manage systems is to enhance productivity through employees’ performances or by the book policies that are made strategically [44]. IIS is the supporting tool for making decisions strategic. The support system is used by banks to function day-to-day banking operations. This is important to make vigilant decisions that would become strategy and to eliminate the error and negative effects factors, IIS is being used [27]. Due to the rapid growth of technology and computerization, it has become easier for top management to make strategies based on unbiased information by using the decision support system and other software like this [45]. We have drawn from the above discussion that:

Hypothesis 3 (H3). *Intelligent information systems do not show any effect on the quality of strategic decisions in the UAE’s national banks.*

2.4. The Relationship among Emotional Intelligence, Intelligent Information Systems and Quality of Strategic Decisions

The ability of top management in the UAE banks to evaluate the provided information through IIS and make decisions that produce long-term quality products is, if not solely, but mainly dependent on the managers’ intelligence level, control over their own emotions and their awareness of their surroundings [46]. No matter how advanced an organization is in technology, it still needs intelligent employees and employers, especially emotionally intelligent managers, who are well capable of making productive and positive decisions that can be converted into strategies/policies of the company. The IIS can only help to gather the required info, based on which the quality decisions will be made [47]. The IIS can only deliver facts about the ongoing performance environment of the organizations, which are supposed to be rational and unbiased, but it is in the hands of decision-makers to ensure that they interpret the raw data productively. It can only be done by the control of emotional intelligence [35]. Hence, EI has a strong impact on the quality of decisions, but we cannot ignore the role of IIS in today’s technological world.

We have discussed the direct relationship of emotional intelligence with IIS and IIS with the quality of strategic decisions. In this section, we propose that the IIS can also play a mediating role between the direct relationship of EI and the quality of strategic decision-making. Based on the above review and discussion, we can develop the following hypothesis:

Hypothesis 4 (H4). *Intelligent information systems mediate between the relationship of emotional intelligence and the quality of strategic decisions in the UAE’s national banks.*

The definition of various constructs, along with their working dimensions, are summarized with their references from previous research studies, as shown in Table 1.

Table 1. Operational definitions of constructs.

Construct	Definition	References
Emotional intelligence	“Emotional intelligence comprises five dimensions, and it is the ability to perceive emotions, to access and generate emotions so as to assist thoughts, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth.”	[48]
Self-awareness	“Focusing attention on the self; processing private & public self-information.”	[49]
Self-management/regulation	“The management of own emotions involves an individual’s ability to connect or disconnect from an emotion depending on its usefulness in any given situation.”	[48]
Motivation	“It involves using available deepest preferences to move and guide the individual towards the desired goals, to help in taking initiative and striving. to improve, and to persevere in the face of setbacks and frustration.”	[11]
Empathy	“This is related to sensing what other people are feeling, being able to take their perspective, and cultivating rapport and attunement with a broad diversity of people.”	[11]
Relationship management	“Relationship management manifests in handling emotions in relationships well and accurately reading social situations and networks, interacting smoothly; using these skills to persuade and lead, negotiate and settle disputes, for cooperation and teamwork.”	[11]

Table 1. Cont.

Construct	Definition	References
Strategic decisions	“Sustainable competitive advantage is the prolonged benefit of implementing some unique value-creating strategies which are not simultaneously being implemented by any current or potential competitors along with the inability to duplicate the benefits of this strategy and deciding to implement the strategy is called strategic decision.”	[50]
Open innovation (OI)	“A new breed of innovation that is forcing firms to reassess their leadership positions, which reflect the performance outcomes of their business decisions and strategies	[5]
Intelligent information systems (IIS)	“Intelligent information systems (IIS) can be defined as the next generation of information systems (IS) developed as a result of integration of artificial intelligence (AI) and database (DB) technologies. IIS embody knowledge that allows them to exhibit intelligent behavior, allows them to cooperate with users and other systems in problem solving, discovery, retrieval, and manipulation of data and knowledge.”	[51]

2.5. Construct of the Research

In this research, we used two independent variables acting on one dependent variable, as shown in Figure 1. The proposition was to prove the relationship between them if there existed any. We introduced dimensions to measure the effect of the independent variables exert on the dependent variables.

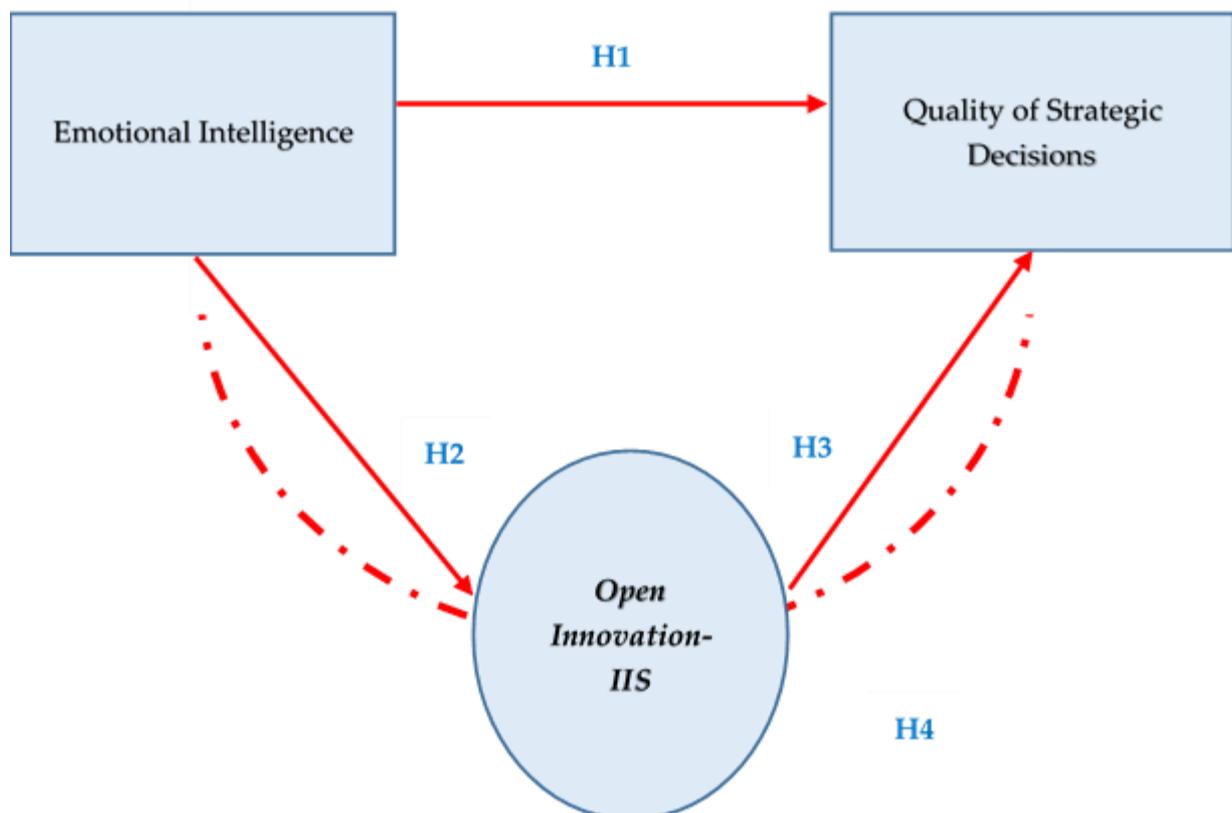


Figure 1. Conceptual model of the research.

Based on the above literature review, we could see emotional intelligence—our first independent variable—as the ability of individual to monitor their own and other people

emotions, to differentiate between the negative and the positive effects of emotions, and to guide someone's thinking and actions by using the emotional information [4,23]. Individuals with emotional intelligence are more flexible, creative, and active in social relations and can maintain motivations [23]. We intended to measure emotional intelligence with three dimensions: self-awareness, self-management, relationship management [4,23] to find out if emotional intelligence had any impact on decision-making effectiveness.

The intelligent information systems were considered to be our second independent variable and regarded as an important tool that can assist in the decision-making process. Study [36] segregated the systems into six types, one of which was the expert system. Study [52] explored more and concluded that the expert system was very important in the overall decision-making process [33]. Our view of the intelligent information system was that they are support units due to the revolution in information technology and may assist in the decision-making process. We planned to use the dimensions proposed by [52] to measure this variable, which had its impact on the decision process effectiveness.

Decision effectiveness is our dependent variable. Decision-making is regarded as the process to decide the next course of actions or as our ability to give a judgment based on our previous experience, and the effectiveness of it can be known only after analyzing the final outcome [39,41]. These authors viewed decision-making from different perspectives, where he focused on the strategic decision-making process. He highlighted three factors to be taken into consideration bearing in mind the process of decision-making, the decision-maker himself, and the decision itself. Hence we regard the decision-making effectiveness by the values and importance based on the quality of the decision and its sensitivity [41].

3. Methodology and Research Design

The focus of the adopted research methodology was the banking sector in the UAE context. The research methodology was adopted to test our research model was quantitative analysis in nature and deductive approach. This quantitative analysis approach used empirical data through a structured survey. Our research follows the descriptive research method and correlational research strategy.

3.1. Sample and Procedures

In this research, we targeted and covered all national banks in the UAE, which are (22) banks (UAE central bank official site can provide all figures). We used cluster sampling to divide the employees into clusters based on the hierarchy level of the bank. Then we chose the employees working in the top management, to whom we distributed questionnaires. An email was sent to all top management employees at all (22) national banks to invite them to participate in the survey. The attempt was repeated three times after each month to encourage them to participate.

The focused group of employees were top management as they have more understanding of our research work and also for the fact that we need employees who have decision-making policies in their job description. The questionnaire was in English as the standard language (with an offer of Arabic translation). The respondents of the questionnaires were guaranteed the confidentiality of their data asked in the questionnaire. We clearly mentioned in the questionnaire that any personal information and personal opinions by the respondents would only be used for research purposes, remain confidential and will not be leaked on any public platform. All demographic variables were only used for guaranteeing that the responses were, in fact, from the targeted population. All demographic information was discarded at the time of the final research analysis. A total of about 300 questionnaires were sent out to the relevant sample. Out of 279 questionnaires that were received, 213 were valid questionnaires and were used for analysis purposes. Any questionnaires that had missing data were excluded from this research.

Our model presents three direct relationships as well as a mediation relationship. As shown in Figure 1, the EI hypothesize a direct relationship with the quality of strategic decisions, and they both are hypothesized to have a direct relationship with open innovation

(IIS). Meanwhile, the IIS mediates the main direct relationship between EI and the quality of strategic decisions. Structural equation modeling was used to analyze the cross-sectional, primary data that we collected from the questionnaire survey method.

3.2. Measures

The questionnaire was based on the literature; we found some of the pre-existing instruments that will be useful to measure the construct of our research. Even though we did not find one previous instrument that covers all parts of our construct, but we used each part from a different source. Then, we adapted and localized each part to be suitable for our research use. The questionnaire was designed on a five-point Likert scale. It was divided into three parts. The first part was used to measure emotional intelligence variables and composed of (9) items. The second part was used to measure the intelligent information systems variables and composed of (5) items. The third part was used to measure the quality of strategic decision variables and composed of (9) items. The “emotional intelligence” measurement scale was adapted from [25,46,53], with some modifications and adjustments. It consists of four dimensions; each dimension was measured by 3 questions each and consisting of a total of 9 items. These dimensions are: (i) Self-awareness: a sample item for this is: I am aware of all feelings’ types that I may feel and How I feel it. (ii) Self-management and a sample item for it is: On the whole, I am a highly motivated person; I find it easy to regulate my emotions. (iii) Relationship management and a sample item for it is: I solve problems with others with an open mind. The “intelligent information systems” variable was measured by the scale [19] consisting of five items. The scale was created with some modifications according to our requirements. A sample item was: banks’ customers are able individually to interact with the website and app & get useful information through online services. The “quality of strategic decisions” measurement scale was adapted from [41,54,55], with some modifications and adjustments. It consists of three dimensions and three questions each and a total of 9-items. The dimensions are (i) exceptional decisions, and a sample item for it is: decisions taken at the bank contribute to providing services in a distinct way. (ii) Continuity decisions and a sample item for it is: Decisions taken at the bank provide all information to make high-quality decisions. (iii) Guidance decisions and a sample item for it is: decisions taken at the bank contribute a statement of guidance methods to allocate resources on the opportunities available.

Control variables: All demographic variables that included name, age, gender, education, or designation of the participants were controlled and not used for analysis.

Sociodemographic Characteristics

Table 2 shows the sociodemographic characteristics of the respondents. The statistics showed that (56%) of the respondents were managers from the middle level, most of them were men. Half of the respondents held graduate and postgraduate degrees, most of whom holding postgraduate degrees, were men. The majority of the respondents were from the age between (40–60), (16%) of the women were below the age of (40) and (17%) were above the age of (60).

Table 2. Sociodemographic characteristics.

Item	Category	Gender		
		Male n (%)	Female n (%)	Total n (%)
Position	Chairman/CEO/branch manager	24 (17%)	11 (16%)	35 (16%)
	Director/high-level manager	39 (27%)	20 (29%)	59 (28%)
	Middle-level manager	81 (56%)	38 (55%)	119 (56%)
Education	PhD	22 (18%)	7 (8%)	29 (14%)
	Master’s	40 (33%)	23 (26%)	63 (30%)
	Bachelor’s	61 (48%)	60 (66%)	121 (56%)

Table 2. Cont.

Item	Category	Gender		
		Male n (%)	Female n (%)	Total n (%)
Age	<40	16 (13%)	14 (16%)	30 (14%)
	40–49	35 (28%)	27 (31%)	62 (29%)
	50–60	45 (36%)	31 (36%)	76 (36%)
	>60	30 (23%)	15 (17%)	45 (21%)

4. Data Analysis

A structural equation modeling analysis through Smart PLS (the statistical software package for partial least squares (SEM)) was used to analyze the data to understand the direct and indirect effect of *emotional intelligence on the quality of strategic decisions* with the mediating effect of *intelligent information systems for the UAE national banks*. The survey was considered as the study data collection tool. The questionnaire was designed in the ways to measure the respondent understanding towards variables of this research and followed by a 5-point Likert scale ranging from 1—strongly disagree to 5—strongly agree. However, the *emotional intelligence* variable comprised three dimensions (self-awareness, self-management and relationship management) and was assessed with (9) items. The *Quality of strategic decisions* variable comprised three dimensions (exceptional decisions, continuity decisions and guidance decisions) and was assessed with (9) items. *Intelligent information systems* variable was assessed with (5) items. Exploratory factor analysis was used to describe and examine the measures. Cronbach’s alpha was also used to measure the consistency of each part of the measure. Varimax rotation of exploratory factor analysis helped to determine, which questions were considered to be best to measure the research variables and dimensions, then we deleted a cross-loaded item from the scale.

4.1. Validity and Reliability

Cronbach’s alpha coefficient was used to examine the internal consistency for each item of the research model. Table 3 shows acceptable levels of reliability to all research constructs, where the reliability coefficient was ranging between (0.709–0.898), and all constructs were above (0.7) (Hair et al. 2010), this indicator helped us to know that the design and scale of the questionnaire were able to measure the research variables and dimensions, and the items in the questionnaire were able to represent each variable of the research.

Table 3. Cronbach’s alpha coefficient for research variables.

Construct	Cronbach’s Alpha	(AVE)
Self-awareness	0.709	0.723
Self-management	0.796	0.681
Relationship management	0.891	0.636
Exceptional decisions	0.782	0.706
Continuity decisions	0.862	0.617
Guidance decisions	0.778	0.619
Emotional intelligence	0.849	0.713
Intelligent information systems	0.898	0.624
Quality of strategic decisions	0.811	0.615

The average variance extracted (AVE) was also assess for the validity of the measurement model. Results showed in Table 2 indicate that all of these values are above the standard point of 50.

4.2. Descriptive Analysis

Table 4 shows the descriptive analysis for the research’s variables and dimensions. The means and standard deviations were used to verify the items’ significance according to the respondents’ perception at the *UAE national banks*. All items had a high significance level since the means ranged from (3.703) to (4.093). The dimension “self-awareness” was the highest in the significance level with a mean and standard deviation of (4.093:0.896). This was followed by “self-management” with a mean and standard deviation of (3.988:0.961), and “continuity decisions”, and “relationship management”, with a mean (3.957:3.832) and standard deviation of (0.959:0.935), respectively.

Table 4. Descriptive analysis to emotional intelligence, quality of strategic decisions and intelligent information systems.

Variables and Dimensions of Research		M	Std.	Sig Rank	Sig Level
emotional intelligence	Self-awareness	4.093	0.896	1	High
	Self-management	3.988	0.961	2	High
	Relationship management	3.832	0.935	4	High
quality of strategic decisions	Exceptional decisions	3.775	0.880	6	High
	Continuity decisions	3.957	0.959	3	High
	Guidance decisions	3.703	0.913	7	High
intelligent information systems	Intelligent information systems	3.806	0.939	5	High

Based on the data of the goodness-of-fit shown in Table 5 for the path model, we conclude that the measurement models provided an acceptable fit to the data, and this improves that the structural equation model of the research fits the sample data.

Table 5. Goodness-of-fit statistics for the structural model.

Chi X ² Square	D.F	Chi Square /D.F	Sig	NFI	CFI	GFI	RAMSA
29.811	7	4.259	0.000	0.699	0.789	0.745	0.112

GFI: goodness of fit index; NFI: Bentler–Bonett-normed fit index; CFI: comparative fit index; RMSEA: root-mean-square error of approximation.

4.3. Hypotheses Testing

Before doing path analysis, to start testing the hypotheses, we conducted the multicollinearity test to ensure there is no high correlation between the dimensions of each variable. The results of multicollinearity showed that there was no abnormal correlation between dimensions of variables. Table 6 shows the results of multicollinearity, as the low cutoff not below 0.2 and the high cutoff is (0.5–0.8), if value > 0.8, then severe multicollinearities may be present [56]. To test the hypotheses and to examine the effect and the significance level of each path in the model, we ran a structural equation modeling, as shown in Figure 2. The path model indices indicate the model’s goodness-of-fit that ensured an acceptable fit to the data to the model, which is presented in Table 5 as the following: chi-squared/D.F (29.811/7) was (4.259), while the goodness of fit index (GFI) was (0.745) (range between 0 to 1, the fewer, the better, greater than (0.9) was needed to justify [56,57]. (NFI) Normed fit index was (0.699), (CFI) comparative fit index (the revised form of the NFI) was (0.789) (both NFI, CFI range between 0 to 1, values closer to 1 indicating good model fit), and the root-mean-square error of approximation (RMSEA) was (0.112) (values range between 0 to 1, values closer to (0) indicating good model fit) [57]. The results showed that all values of indices refer to valid data for analysis and model fit, as it comes within the acceptable level.

Table 6. Tolerance and variance inflation factor (VIF) of the research variables.

Construct	Tolerance	(VIF)
Self-awareness	0.466	7.7623
Self-management	0.726	9.6881
Relationship management	0.561	8.6636
Exceptional decisions	0.482	7.7406
Continuity decisions	0.356	6.6817
Guidance decisions	0.527	8.6819
Emotional intelligence	0.419	7.7213
Intelligent information systems	0.389	6.6724

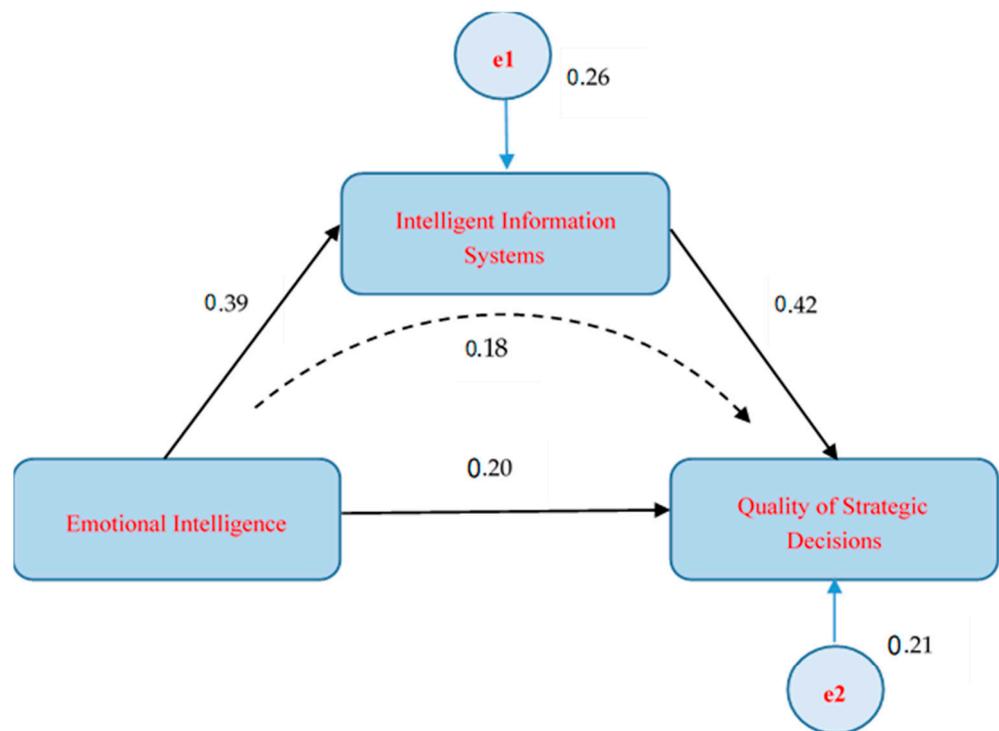


Figure 2. Result of path analysis.

Therefore, we conclude from all model-fit indices that the overall fit of the model is approved for continuing with hypothesis testing to examine the causal relationships between the research variables.

To test the research hypotheses, we established two structural models. The main effect model tested the direct relationship between *emotional intelligence* and the *quality of strategic decisions*. The mediation model tested the mediating role of *intelligent information systems* between *emotional intelligence* and *quality of strategic decisions at the UAE national banks*. The analysis shown in Table 7 presents standardized path coefficients of the research model (beta coefficients in which the results of the estimates are taken from a regression analysis). Table 7 and Figure 2 illustrate that the path coefficients from *emotional intelligence to intelligent information systems* were positive and significant (standardized coefficient = 0.394; $p < 0.05$), the path coefficients from *emotional intelligence to quality of strategic decisions* were positive and significant (standardized coefficient = 0.195; $p < 0.05$). Therefore, there is enough evidence to support H1 and H2.

Table 7. Direct, indirect, and total effect for path analysis.

From To	Direct Effect		Indirect Effect		Total Effect	
	Emotional Intelligence	Intelligent Information Systems	Emotional Intelligence	Intelligent Information Systems	Emotional Intelligence	Intelligent Information Systems
Intelligent information systems	0.394	0.000	0.000	0.000	0.399	0.000
Quality of strategic decisions	0.195	0.423	0.184	0.000	0.371	0.307

The path coefficients from *intelligent information systems to quality of strategic decisions* were also positive and significant (standardized coefficient = 0.423; $p < 0.05$). Therefore, we can support H3. The indirect effects of *emotional intelligence on the quality of strategic decisions* through *intelligent information systems* as a mediator were also positive and significant (indirect standardized coefficient = 0.184; $p < 0.05$). This means H4 is also supported. Therefore, the results supported all hypotheses. Hypotheses testing results are presented in Table 8.

Table 8. Hypotheses testing results.

Hypothesis	Causal Path	Standardized Coefficients	Test Result
H1	Emotional intelligence on intelligent information systems	0.39 *	supported
H2	Emotional intelligence on quality of strategic decisions	0.20 *	supported
H3	Intelligent information systems on the quality of strategic decisions	0.42 *	supported
H4	Indirect effect to emotional intelligence on quality of strategic decisions through intelligent information systems as a mediator	0.18 *	supported

* significant at a level of ($\alpha \leq 0.05$).

Figure 2 shows the coefficient of determination (r^2) (the part of the variance in the dependent variable that is predictable from the independent variable, range between (0 and 1) the highest the better). The results, which are illustrated in Figure 2, show that *emotional intelligence* accounts for (26%) of the variance in *intelligent information systems*; *emotional intelligence, intelligent information systems*, account for (21%) of the variance in the *quality of strategic decisions*.

5. Discussion

In this research, we examined hypothesis H1, which postulated a relationship and impact of emotional intelligence on the quality of strategic decisions, which was supported. We introduced four dimensions to measure the relationship and impact of emotional intelligence and decision-making. Self-awareness and self-management proved to be important; however, relationship management was the strongest relationship found. This implies that the managers who responded to this survey believe it to be more effective while taking decisions. The positive relationship between emotional intelligence and the effectiveness of the decision highlighted the recognition of managers' self-awareness, self-management and, of course, relationship management. These results align with the results of other studies [21,26,38,40]. We also examined hypothesis H2, which postulated a relationship and impact of emotional intelligence on intelligent information systems, which was supported, reflecting the fact that efficiency in using the IIS requires managers with stable emotions. This could be understood from the manager's response of how bank

systems users are more effective while controlling their emotions. These results align with the results of other studies [25,28,29]. For hypothesis H3, which postulated a relationship and impact of intelligent information systems on the quality of strategic decisions, we found a strong positive belief among the respondents that the feedback from these systems will help them take effective decisions. This dimension shows almost a perfect relationship and indicates that in the future, most banks will rely more on intelligent information systems for their businesses and their decision-making processes. These results align with the results of other studies [27,43,45].

Professional decisions are quite easy to make, as they involve minimum to zero human emotions and only depend on what is best for the organization, regardless of how the decision may affect employees in the long run. However, when an organization is running on human resources, it is necessary to consider that their betterment will not only not hurt the organization, but in fact, benefit both parties. This is when emotional intelligence interferes and lets the decision-makers decide rationally. However, again it can only be possible if emotional intelligence is under control [48]. The results show that emotional intelligence works as a personality trait while making decisions, and if this trait is found in managers of the banks, then the probability of rational decisions being made is higher, hence better outcomes [40].

According to our results, bank managers who are in full control of their emotions and can make rational decisions based on their observation of the surroundings are more successful in their field as their subordinates feel a just environment to work in. The strategic decisions are mainly dependent on relevant information and the authenticity of that information. Needless to say, any information provided by employees or employers of the banks can be biased or might have a capacity for human error. To avoid compromising the quality of strategic decisions, organizations and banks are adopting IISs to ensure the decisions can produce fruitful results [55]. IIS is proven to be helpful in not only data management but also knowledge management, which is collected by the employees. According to the results, employees who share their ideas and concerns more often, and when managers take them into account, their self-efficacy also increases, resulting in better performance and outcomes [34]. The banks that are adoptive enough to introduce every new technological technique into their systems are the ones who survive in the end. When the inbound and outbound information of banks or any company is intact and in full control of management, that is when the company is entitled to succeed. This can only be done by acquiring all the reliable technology and incorporating it into their systems [32]. After testing our mediation hypothesis H4, we can conclude that the results supported the fact that IIS does impact the relationship between emotional intelligence and the quality of strategic decisions. IISs work as an aid for employers to ensure that their decisions only benefit all the parties involved and no one is at stake. These results are aligned with the results of the studies [8,25,47]. This is why [27] called IIS support systems for decision-making. The UAE commercial banks have advanced in technology as much as now their all branches are automated with customer services program and in-store facilitation services. In the questionnaires, top management agreed that IIS programs are life-changing and that it helps them strengthen their decision-making power by having full grip over their emotions. Sometimes a manager must decide for an employee, who may be in their good books, but the decision could be a bit harsh. However, with emotional control and organization being the priority, such decisions become easier to make because the picture of circumstances and the whole situation is cleared. The results of this study are pretty clear in the respect that decisions made in financial institutes like banks are always risky. However, with the help of IIS and human emotional intelligence, the risk could be minimized into profitable outcomes [58].

Hence, this research proves that technology systems need to be up to the mark to ensure that the top management or employers of the organization (here, the commercial banks' case) are not only unbiased while making the decision, but also they have the power

to make strategic decision that could be converted into policies. Today, it is IIS; tomorrow, it will be another advancement, and all for the facilitation of humans.

6. Conclusions

The concern of this research is whether intelligent information systems would be enhanced by the level of emotional intelligence and whether using information systems would be affected by the users' emotional intelligence. We provided empirical evidence that supported the relationship between them. We used correlation and regression analyses to determine the sensitivity of these relations, which proved to be positive and strong. The hypothesis assumed that there is an effective relationship between the independent and dependent variables, which was proven to be right. Hence, the impact of emotional intelligence and intelligent information systems is significant. The relationship is strongly positive, which is a good indicator, as the world is changing and new technologies are emerging every day. The banking sector of any state is usually the most advanced industry, as it tends to adopt the latest technologies since the banking system is based on technology. The UAE is the hub of seven emirates, who are known to be the fastest adopters of any technological advancement. This study also proves that the UAE did not hold back when it came to adopting IIS in their banking system. Banks have started relying more on technological resources than human resources. However, this does not mean that human resources are of no use or may go extinct in the future. Instead, the banking sector requires employees who are both academically eligible for a post and also emotionally strong. Their emotional intelligence could be used when the IIS is delivering the required data and information. The combination of emotional intelligence and IIS is not only vigorous but also essential to compete globally. However, again, the main purpose of using this combination is to ensure that the banking system stays up-to-date for the convenience of employees and customers. The decisions made by managers of the banks impact not only the internal structure of the banks but also the exterior (i.e., customers).

The UAE has changed the concept of banking in the previous years. All this was possible due to the acceptance and willingness of adoption towards technology. Not only this, banks in the UAE have started employing people who are not just academically capable but also who are emotionally fit and strong. Although it is worth noting that no one is born with perfect emotional intelligence, it is a learned trait that is developed within the personality throughout experiences. Emotionally intelligent people can also make wrong decisions, but the important thing is what they learn from it and how they implement that learning in their later decisions. However, yes, the results of bad decisions do not take much of a toll on emotionally intelligent managers.

IIS has proven to be evolutionary in the banks, as it has changed the scope of banking tremendously. IIS has made life easier for all the managers in their day-to-day decisions, especially in developing strategic policies for the company and its employees. IIS gives easy access to the relevant data and information, making matters smoother and rational with minimum to zero bias elements.

The majority of respondents were young managers who strongly believe in the new intelligent systems as the future for the banking industry, and they need to adopt with open minds the changes that are going to take place. We expect much change in humans' banking behaviors in the future based on these findings.

7. Theoretical, Practical Contributions and Limitations

This research aimed to contribute to the literature as considered from the first in the UAE to study the impact of emotional intelligence and intelligent information systems in decision effectiveness.

7.1. Theoretical Contributions

This study adds much to the literature in three aspects; emotional intelligence, intelligent information systems and quality of strategic decisions. Many have previously studied

these concepts, but only separately. This study has tried to cover and relate all three in one study. The literature extends with the UAE banking sector and provides an idea of how the UAE has successfully developed IIS patterns into their banks. Researchers and academics can learn from this study how training and development efforts with the willingness to adopt can take a company and its state to a whole new level of success with little effort.

7.2. Practical Contributions

This study was conducted in the banking sector of the UAE. This means that managers, employees as well customers of banks in the UAE could benefit. Moreover, those banks who are falling behind in technology would know what a great deal IIS actually is. This study has also made a remarkable discovery of how emotional strength is an essential personality trait. Hiring managers could benefit from the study and would know whom to hire. Through results and literature, this study has made it clear that using IIS does not mean that managers can fully rely on technology but that managers need to be vigilant with their personality traits and use them as required without interrupting their emotions. This study is beneficial for not only the banks of the UAE but also all worldwide, as the UAE is known to be extremely advanced in terms of technology, and other countries look up to the UAE.

Since no study handled this topic in the UAE before, we studied independent variables with few dimensions due to constraints of time resources. Hence, we suggest future research to explore the same from different dimensions. Moreover, the study instrument was adapted with the help of pre-existing instruments from the literature.

The acceptance of the hypothesis indicates the strong relationship between emotional intelligence and decision-making. Therefore, we recommend including an emotional intelligence check feature while hiring managers, as it will help make effective decisions in the future.

We also recommend the banking human resource department to conduct emotional intelligence training for their employees, especially the managers, as it was proved that it has a strong relationship with the decision effectiveness.

Intelligent information systems are becoming one of the essential factors in the banking systems. This was recognized and proved by the result of this survey. Therefore, we do strongly recommend banks start to investigate more in adopting new technologies.

In testing the second dimension used to check the intelligent information systems—the feedback—we found the strongest positive relationship between the effectiveness of the decision-making and all the dimensioned used. Hence we recommend managers in the banking sector use the new artificial intelligence while taking their decisions.

We also recommend that human resource departments in banks provide their employees, especially managers, with more training the development programs to enable them to make use of all the new available technologies.

We call for future research to study more open innovation areas that explore the research and development (R&D) sectors of companies and how these sectors can benefit from IIS. This could eventually lead to strategic decisions for companies without weakening the emotional intelligence of managers.

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References

- Janczak, S. The strategic decision-making process in organizations. *Probl. Perspect. Manag.* **2005**, *3*, 58–70.
- Batool, F. Emotional intelligence and effective leadership. *J. Bus. Stud. Q.* **2013**, *22*, 5–10. [[CrossRef](#)]
- Istianingsih, N.; Masnun, A.; Pratiwi, W. Managerial performance models through decision making and emotional intelligence in public sector. *Adm. Si Manag. Public* **2020**, *35*, 153–166. [[CrossRef](#)]
- Dissanayaka, D.R. Role of Emotional Intelligence in Organizational Learning: An Empirical Study Based on Banking Sector in Sri Lanka. In Proceedings of the International Conference of Business & Information, University of Kelaniya, Kelaniya, Sri Lanka, 4 June 2010; pp. 1–23.
- Chesbrough, H.W.; Appleyard, M.M. Open Innovation and Strategy. *Calif. Manag. Rev.* **2007**, *50*, 57–76. [[CrossRef](#)]
- Wu, I.I.; Hu, Y.P. Open innovation based knowledge management implementation: A mediating role of knowledge management design. *J. Knowl. Manag.* **2018**, *22*, 1736–1756. [[CrossRef](#)]
- Davies, M.S.L.; Roberts, R.D. Emotional intelligence: In search of an elusive construct. *J. Personal. Soc. Psychol.* **1998**, *75*, 989–1015. [[CrossRef](#)]
- Yalcin, I.; Seker, M.; Bayram, A. A Research: The Interaction Between Managers' Personality Traits, Emotional Intelligence and Their Use of Management Information Systems. *Int. J. Econ. Adm. Stud.* **2014**, 75–92.
- Grezes, V.; Bonazzi, R.; Cimmino, M.F. Atman: Intelligent information gap detection for learning organizations: First steps toward computational collective intelligence for decision making. *J. Intell. Stud. Bus.* **2020**, *10*, 26–31. [[CrossRef](#)]
- Schwenk, C.R. Strategic Decision Making. *J. Manag.* **1995**, *21*, 471–493. [[CrossRef](#)]
- Goelman, H.; Guo, H. What we know and what we don't know about burnout among early childhood care providers. *Child Youth Care Forum* **1998**, *27*, 175–199. [[CrossRef](#)]
- Kuruvilla, J.; Menezes, P. Effect of Emotional Intelligence Training on Emotional Intelligence of graduate Nursing Students. *Asian J. Nurs. Educ. Res.* **2019**, *9*, 289. [[CrossRef](#)]
- Boyatzis, R.E.; Saatioglu, A. A 20-year view of trying to develop emotional, social and cognitive intelligence competencies in graduate management education. *J. Manag. Dev.* **2008**, *27*, 92–108. [[CrossRef](#)]
- Cherniss, K. Developing Emotional Competence Through Relationships at Work. *Adm. Soc. Work* **2001**, *27*, 254–285.
- Abraham, R. The role of job control as a moderator of emotional dissonance and emotional intelligence–outcome relationships. *J. Psychol. Interdiscip. Appl.* **2000**, *134*, 169–184. [[CrossRef](#)]
- Cherniss, C. Emotional Intelligence: What it is and why it matters. *Consort. Res. Emot. Intell. Organ.* **2000**, *15*, 1–14.
- Michalisin, M.D.; Karau, S.J.; Tangpong, C. Top Management Team Cohesion and Superior Industry Returns: An Empirical Study of the Resource-Based View. *Group Organ. Manag.* **2004**, *29*, 125–140. [[CrossRef](#)]
- Yip, J.A.; Côté, S. The Emotionally Intelligent Decision Maker: Emotion-Understanding Ability Reduces the Effect of Incidental Anxiety on Risk Taking. *Psychol. Sci.* **2013**, *24*, 48–55. [[CrossRef](#)]
- O, Y.L. Intelligent Information Systems for Decision Support. *IC-AI* **2004**, *1*, 326–332.
- Al-Tamimi, H.A.H. Factors Influencing Performance of The UAE Islamic and Conventional National Banks. *Glob. J. Bus. Res.* **2010**, *4*, 1–11.
- Santos, A.; Wang, W.; Lewis, J. Emotional intelligence and career decision-making difficulties: The mediating role of career decision self-efficacy. *J. Vocat. Behav.* **2018**, *107*, 295–309. [[CrossRef](#)]
- Hussain, R.S.; Imran, M.M. Emotional Intelligence & Organizational Performance: (A Case Study of Banking Sector in Pakistan). *Int. J. Bus. Manag.* **2010**, *5*, 191–197. [[CrossRef](#)]
- Nassar, M.A. Psychological empowerment and organisational change among hotel employees in Egypt. *Res. Hosp. Manag.* **2017**, *7*, 91–98. [[CrossRef](#)]
- Ramchandran, K.; Tranel, D.; Duster, K.; Denburg, N.L. The Role of Emotional vs. Cognitive Intelligence in Economic Decision-Making Amongst Older Adults. *Front. Neurosci.* **2020**, *14*, 1–15. [[CrossRef](#)]
- Anand, R. Decision Making Styles of IT Professionals in Relation to their Emotional Intelligence. Decision Making Styles of IT Professionals in Relation to their Emotional Intelligence. *Sumedha J. Manag.* **2015**, *4*, 18–37.
- Cuellar-Molina, D.; García-Cabrera, A.M.; de la Cruz Déniz-Déniz, M. Emotional intelligence of the HR decision-maker and high-performance HR practices in SMEs. *Eur. J. Manag. Bus. Econ.* **2019**, *28*, 52–89. [[CrossRef](#)]
- Phillips, W. Intelligent decision support systems. *Intell. Syst. Ref. Libr.* **2013**, *81*, 31–85. [[CrossRef](#)]
- Businsky, R.A. The effects of increased emotional intelligence on information technology professionals. *Diss. Abstr. Int. Sect. A Humanit. Soc. Sci.* **2018**, *79*, 265–283.
- Gassmann, O.; Enkel, E.; Chesbrough, H. The future of open innovation. *J. Compil.* **2010**, *40*, 213–221. [[CrossRef](#)]
- Paskaleva, K.A. The smart city: A nexus for open innovation? *Intell. Build. Int.* **2011**, *3*, 153–171. [[CrossRef](#)]
- Sun, Y.; Liu, J.; Ding, Y. Technology Analysis & Strategic Management Analysis of the relationship between open innovation, knowledge management capability and dual innovation. *Technol. Anal. Strateg. Manag.* **2019**, *5*, 1–14. [[CrossRef](#)]
- Piller, F.T.; West, J. New Frontiers in Open Innovation. *Oxf. Scholarsh. Online* **2017**, *5*, 36–51. [[CrossRef](#)]

33. Alzoubi, H. The role of intelligent information system in e-supply chain management performance. *Int. J. Multidiscip. Thought* **2018**, *7*, 363–370.
34. Mirzaee, S.; Ghaffari, A. Investigating the impact of information systems on knowledge sharing. *J. Knowl. Manag.* **2018**, *22*, 501–520. [[CrossRef](#)]
35. Zhang, L.; Wang, H. Intelligent information processing in human resource management: An implementation case in China. *Expert Syst.* **2006**, *23*, 356–369. [[CrossRef](#)]
36. Mentzas, G. Towards intelligent organisational information systems. *Int. Trans. Oper. Res.* **1994**, *1*, 169–187. [[CrossRef](#)]
37. Luo, Y.M.; Liu, W.K.; Yue, X.G.; Rosen, M.A. Sustainable emergency management based on intelligent information processing. *Sustainability* **2020**, *12*, 1081. [[CrossRef](#)]
38. Nasef, H.; Abd-Elrhman, E.; Ghoneimy, A. The Effect of Emotional Intelligence Program on Decision Making Style. *Am. J. Nurs. Res.* **2018**, *6*, 524–532. [[CrossRef](#)]
39. Saaty, T.L. Decision making with the Analytic Hierarchy Process. *Int. J. Serv. Sci.* **2008**, *1*, 83–98. [[CrossRef](#)]
40. Vaughan, R.; Laborde, S.; McConville, C. The effect of athletic expertise and trait emotional intelligence on decision-making. *Eur. Bus. Rev.* **2019**, *26*, 206–217. [[CrossRef](#)]
41. ALnuaimi, M.A.; Alzubi, H.M.; Alzoubi, A.A.; AL-Shinewi, M.W. The Impact of Managers Efficiency on Quality of Strategic Decision-making under Crisis Management: An Empirical Study on Private Hospitals in Baghdad-Iraq. *Eur. J. Bus. Manag.* **2015**, *7*, 156–165.
42. Eisenhardt, K. Strategy as Strategic Decision Making. *Sloan Manag. Rev.* **1999**, *40*, 65–72.
43. Alkhaffaf, M.M. The Role of Information Systems in Decision Making: The case of Jordan Bank. *Intell. Syst. Eng.* **2012**, *3*, 1719–1742.
44. Belkadi, F.; Dhueib, M.A.; Aguado, J.V.; Laroche, F.; Bernard, A.; Chinesta, F. Intelligent assistant system as a context-aware decision-making support for the workers of the future. *Comput. Ind. Eng.* **2020**, *139*, 105732. [[CrossRef](#)]
45. Qehaja, A.B.; Namani, M.B. Improving Decision Making with Information Systems Technology—A theoretical approach. *Ilir. Int. Rev.* **2013**, *2013* *3*, 49. [[CrossRef](#)]
46. Hess, J.D.; Bacigalupo, A.C. Enhancing decisions and decision-making processes through the application of emotional intelligence skills. *Manag. Decis.* **2011**, *49*, 710–721. [[CrossRef](#)]
47. Scott-Ladd, B.; Chan, C.C.A. Emotional intelligence and participation in decision-making: Strategies for promoting organizational learning and change. *Strateg. Chang.* **2004**, *13*, 95–105. [[CrossRef](#)]
48. Mayer, J.D.; Salovey, P. The intelligence of emotional intelligence. *Intelligence* **1993**, *17*, 433–442. Available online: <http://www.sciencedirect.com/science/article/pii/0160289693900103> (accessed on 16 December 2020). [[CrossRef](#)]
49. Morin, A. Self-awareness part 1: Definition, measures, effects, functions, and antecedents. *Soc. Personal. Psychol. Compass* **2011**, *5*, 807–823. [[CrossRef](#)]
50. Hoffman, N.P. An examination of the “sustainable competitive advantage” concept: Past, present, and future. *Acad. Mark. Sci. Rev.* **2000**, *4*, 1–16.
51. Ras, Z.W.; Tsay, L.S. Advances in Intelligent Information Systems. In *Studies in Computational Intelligence*; Springer: Berlin/Heidelberg, Germany, 2010. [[CrossRef](#)]
52. Fahim, M.G.A. Improving administrative decisions through expert systems: Empirical analysis. *Rev. Econ. Political Sci.* **2018**, *3*, 119–138. [[CrossRef](#)]
53. Ugoani, J.N.N.; Amu, C.U.; Kalu, E.O. Dimensions of Emotional Intelligence and Transformational Leadership: A Correlation Analysis. *Indep. J. Manag. Prod.* **2015**, *6*. [[CrossRef](#)]
54. Cameron, B.G.; Crawley, E.F.; Feng, W.; Lin, M. Strategic decisions in complex stakeholder environments: A theory of generalized exchange. *EMJ Eng. Manag. J.* **2011**, *23*, 37–45. [[CrossRef](#)]
55. Citroen, C.L. The role of information in strategic decision-making. *Int. J. Inf. Manag.* **2011**, *31*, 493–501. [[CrossRef](#)]
56. Hair, J.F., Jr.; Gabriel, M.L.D.; Patel, V.K. Modelagem de Equações Estruturais Baseada em Covariância (CB-SEM) com o AMOS: Orientações sobre a sua aplicação como uma Ferramenta de Pesquisa de Marketing. *Rev. Bras. Mark.* **2014**, *13*, 44–55. [[CrossRef](#)]
57. Hair, J.F.; Sarstedt, M.; Ringle, C.M.; Mena, J.A. An assessment of the use of partial least squares structural equation modeling in marketing research. *J. Acad. Mark. Sci.* **2012**, *40*, 414–433. [[CrossRef](#)]
58. Singh, J.E.; Babshetti, V.; Shivaprasad, H.N. Efficient Market Hypothesis to Behavioral Finance: A Review of Rationality to Irrationality. *Mater. Today Proc.* **2021**. [[CrossRef](#)]