The Impact of Business Intelligence on the Effectiveness of Decision Making at the Islamic International Arab Bank

Dr. Diana Abdulrazaq Khrisat
Faculty of Finance & Business, The World Islamic Sciences and Education University, Jordan
diana.khressat@wise.edu.jo

Dr. Suzan Saleh Darwazeh
Faculty of Finance & Business, The World Islamic Sciences and Education University, Jordan
suzan.darwazeh@wise.edu.jo

ABSTRACT The study purpose is to investigate the impact of Business Intelligence within its domains "Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation" in the effectiveness of decision making within it domains "Proper timing of decision making, Ease of implementing the decision, and Accepting the decision from the concerned employee" at the Islamic International Arab Bank.

To achieve the aim of the study, the quantitative descriptive approach was adopted, by comprehensive sampling to collect data. The questionnaire was administrated manually consisting of (28) items on the sample; which consisted of high management mangers totaling (50) managers, all questionnaires were valid for analysis. A set of statistical methods were used to analyze the data, including the mean and simple and multiple regression coefficient through the statistical analysis program (SPSS). Based on the statistical analysis, several findings were concluded, the most important are:
- The levels of importance for each of the two domains of Business Intelligence, and the Effectiveness of Decision Making in their domains, in the International Arab Islamic Bank were high for all domains.
- There is a significant statistical effect of Business Intelligence on the Effectiveness of Decision Making at the International Arab Islamic Bank.
Based on the findings, the study presented several recommendations, those are:
- Increasing interest in Business Intelligence in all its domains at the Islamic International Arab Bank; since it has an impact on achieving competitive advantage, through interest in strengthening the infrastructure; and using the best technology; so that Business Intelligence is at the highest level at the bank since there is a large number of competitors in the banking sector.
- Enhancing interest in the Effectiveness of Decision Making, because of the sensitivity of decision making, the proper timing for implementing the decision, the ease of implementing the decision, and the acceptance of the concerned employee help to strengthen trust between the decision makers and those affected by the decision, through the participation of subordinates in decisions making through brainstorming sessions; and processes. Persuasion and activating dialogue in the bank to improve transparency.

KEYWORDS: Business Intelligence, Effectiveness of Decision Making, Islamic International Arab Bank

STUDY FRAMEWORK
INTRODUCTION

Today's organizations are witnessing rapid fluctuations and major technological developments, leading to significant changes in the essence of organizational work. This has necessitated the search for ways to survive amid increasing competition and to make every effort to remain in the market. Therefore, business intelligence (BI) role appears to be one of the most important administrative practices needed by organizations, especially banks.

Business Intelligence (BI) is an administrative field with numerous specializations and domains aimed at balancing business and technology. It has an important role in the continuity and success of the orgnizations' operations. . It relies on a set of systems and tools that enable users from various positions process Data through collecting, storing and analyzing. This aids in making rational decisions to increase competitiveness or at least maintain a competitive stance. Business Intelligence helps seize opportunities in an effort to secure a larger market share.

Administrative decisions are the backbone of management. Without them, an organization may weaken and potentially vanish. decision-making aims to solve and diagnose problems and select the best alternatives, requiring the manager's skill to ensure decisions are fair, rational, and legal. However, decisions at all levels, whether routine or strategic, require thorough study and conscious awareness by the decision-makers. They must also be accompanied by streamlined procedures during implementation. It's crucial not to overlook that participation in administrative decisions greatly contributes to decision acceptance, reflecting the integrity and transparency of decision-making within the organization. This creates a work environment rooted in trust and mutual respect.

The effectiveness of administrative decisions is pivotal in achieving an organization's goals, particularly when decision-makers select the optimal timing for announcing their decisions, simplify their implementation, and ensure acceptance by subordinates. This is more feasible when accurate information is available, making decisions more effective, consistent, and equitable. Such outcomes are achievable with Business Intelligence capable of collecting and analyzing data, thus enhancing decision quality and effectiveness.

Therefore, business organizations realized the importance of taking care of its environment in a way that enable them to overcome any threats and investing opportunities, consequently, the adoption of Business Intelligence and the effectiveness of decision making stand as key attributes of today's business organizations. Through Business Intelligence, organizations can adjust their strategies and make informed decisions in response to environmental changes, maintaining their distinct position among competitors

The International Arab Islamic Bank was selected as a case study because it has acknowledged the importance of paying attention to its operational environment, enabling it to navigate threats and leverage opportunities. The Bank, with its branches across the Hashemite Kingdom of Jordan, has shown a keen interest in implementing Business Intelligence to compete in a highly competitive and unstable environment.

The study intends to investigate the influence of BI on the efficacy of administrative decisions at the Islamic International Arab Bank in light of the earlier concepts and the significance of business intelligence.

Importance of the Study:
The importance of the study has two aspects.
Scientific importance: The importance of the study merges from the importance of the variables under study; Business Intelligence within its domains (Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation), Effectiveness of Decision Making within its domains (Proper timing of decision making, Ease of implementing the decision, and Accepting the decision from the concerned employee), the researchers hope that the study is a new addition to enrich the Arabic library with regard to its findings and recommendations.
Practical importance: The International Arab Islamic Bank plays a central role in the life of societies, as it serves all people, and has a main role in economy. The study is

expected to offer many findings and recommendations to apply business intelligence and its role in decision making effectiveness at The International Arab Islamic Bank, this make the banks capable of achieving it goals and makes the work environment more secure and stable. The researchers believe that the study's conclusions and suggestions would draw decision-makers' and concerned people attention.

Study objectives

The study is seeking to identify BI impact within its domains "Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation" on the effectiveness of decision making in all its domains "Proper timing of decision making, Ease of implementing the decision, and Accepting the decision from the concerned employee" at the International Arab Islamic Bank. The study is seeking to achieve the following:

- Exploring the importance of BI in its domains "Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation" at the Islamic International Arab Bank.
- Identifying the level of relative importance of the effectiveness of decision-making in terms of its domains "Proper timing of decision making, Ease of implementing the decision, and Accepting the decision from the concerned employee" at the Islamic International Arab Bank.
- Identifying the impact of BI in its combined domains "Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation" on the proper timing of decision-making at the Islamic International Arab Bank.
- Identifying the impact of BI in its combined domains "Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation" on the ease of decision implementation at the Islamic International Arab Bank.
- Identifying the impact BI with its combined domains "Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation" on accepting the decision by the concerned employee at the Islamic International Arab Bank.

Research Problem and Questions

The problem of the study lies in assessing the effectiveness of decision making at the International Arab Islamic Bank, leveraging what BI offers. The banking sector plays a crucial role in the economic transformation process, characterized by intense competition. The significant similarity in the services provided by these banks intensifies this competition. Consequently, there is a pressing need to enhance competitive tools and strengthen market position to retain current customers and attract new ones with distinguished services. The bank strives to innovate and introduce new methods that are difficult for competitors to replicate, providing services characterized by ease of access to information and follow-up. This innovation fosters customer confidence, buoyed by the bank's long-standing history and reputation. Therefore, the study's problem is encapsulated in the following primary question:

- "What is the level of relative importance of Business Intelligence in its domains Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation" in the Effectiveness of decision making in its combined domains "Proper timing of decision making, Ease of implementing the decision, and Accepting the decision from the concerned employee" at the Islamic International Arab Bank? From this master question, the following sub-questions aris:
  - "What is the level of relative importance of Business Intelligence in its domains "Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation" at the Islamic International Arab Bank?"
  - "What is the level of relative importance of of the effectiveness of decision-making in terms of its domains "Proper timing of decision making, Ease of implementing the decision, and Accepting the decision from the concerned employee" at the Islamic International Arab Bank?"
  - "What is the is the impact of Business Intelligence in its combined domains "Data Warehouse, Data Mining, Online Analytical Processing, Report

Preparation" on the timely implementation of decisions at the Islamic International Arab Bank?"

- "What is the impact of Business Intelligence in its combined domains "Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation" on the ease of decision implementation at the Islamic International Arab Bank?"
- "What is the impact of Business Intelligence in its combined domains "Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation" on decision acceptance by the concerned employee at the Islamic International Arab Bank?"

Study hypotheses

Main hypothesis (Ho1): There is no statistically significant effect at a significance level ($\alpha \leq 0.05$) of BI in its domains "Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation" on the Effectiveness of Decision Making in its domains (Proper timing of decision making, Ease of implementing the decision, and Accepting the decision from the concerned employee) at

the Islamic International Arab Bank. The subordinate sub-hypotheses branch out from the original hypothesis:

- **Sub-Hypothesis 1 (Ho 1.1):** There is no statistically significant effect at a significance level ($\alpha \leq 0.05$) of BI in its domains "Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation" on the Proper timing of decision-making at the Islamic International Arab Bank.
- **Sub-Hypothesis 2 (Ho. 1.2):** There is no significant statistical effect at a significance level ($\alpha \leq 0.05$) of BI in its domains "Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation" on the Ease of implementing the decision at the Islamic International Arab Bank.
- **Sub-Hypothesis 3 (Ho. 1.3):** There is no significant statistical effect at a significance level ($\alpha \leq 0.05$) of BI in its domains "Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation" on Acceptance of the decision by the concerned employee at the Islamic International Arab Bank.
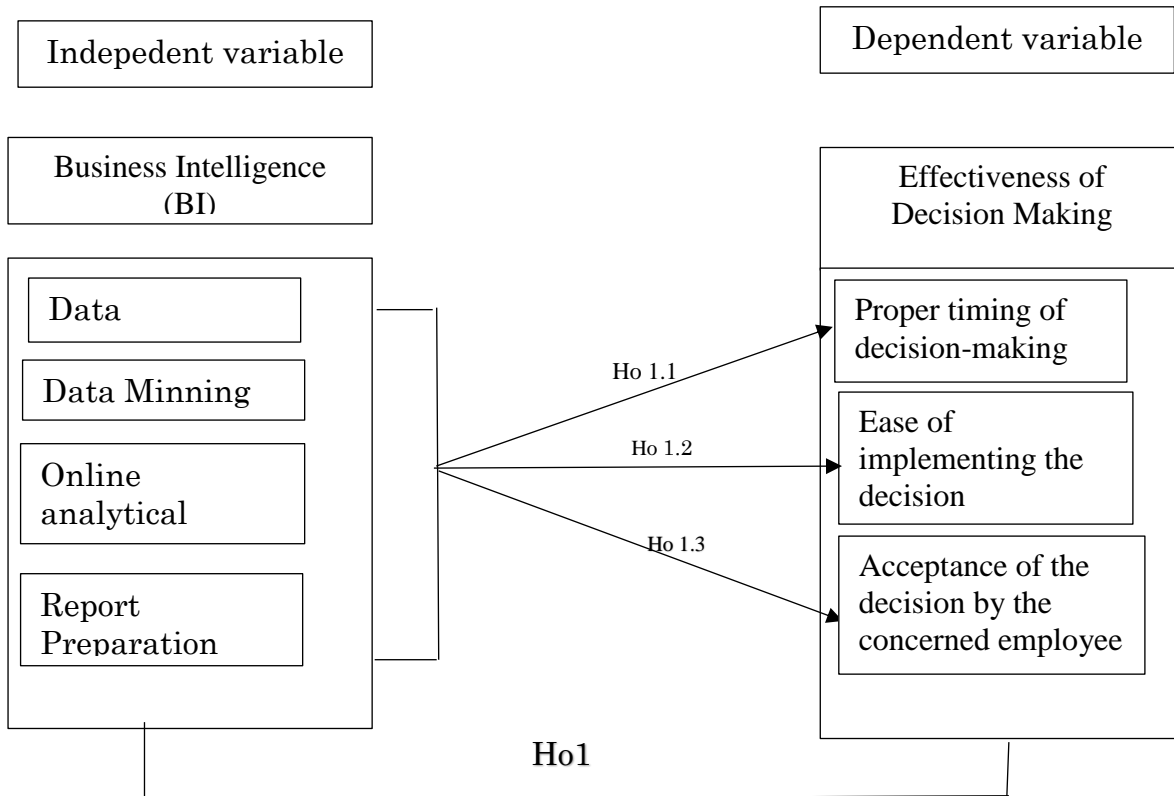

Figure 1. Study Model

Previous studies in the Arabic an Context

Al-Khatahtbeh's study (2023) sought to explore the influence of business intelligence across its domains (Online Analytical Processing, Data Mining, Data Warehouse , and report presentation) on service quality, which was examined through domains such as speed of response, security, realiability, and tangibility. Strategic ambidexterity served as a mediating variable in this relationship. The research adopted a descriptive analytical approach, focusing on a sample of (585) employees from the upper and middle management levels at private hospitals under the Jordan Ministry of Health. Proportional stratified random sampling was utilized for the study. Data collection was carried out using a questionnaire, with (243) questionnaires distributed and subsequently analyzed using the (SPSS) program and (PLS-4 SMART) software. The findings highlighted the significant relative importance of business intelligence, service quality, and organizational ambidexterity within the hospitals. Additionally, the study confirmed the impact of business intelligence on service quality, moderated by organizational ambidexterity, in the private hospitals affiliated with the Ministry of Health in Jordan.

Al-Balawi's study (2023) focused on evaluating the impact of innovative educational leadership, characterized by adopting new ideas, innovative planning, and the development of an innovative vision, on enhancing business intelligence applications, specifically in the areas of data collection, Report Preparation, and information transmission, at the University of Tabuk. The research methodology involved distributing questionnaires to (150) faculty members and conducting a comprehensive survey. Utilizing a quantitative approach, both descriptive and analytical, the study analyzed data and tested hypotheses through statistical methods. The findings revealed a statistically significant relationship between the practices of innovative leadership and the effectiveness of business intelligence applications at the University of Tabuk.

Consequently, the study underscored the importance of refining data collection processes, especially from the internet, aiming to achieve data acquisition at minimal costs and maximal quality.

The study by **Binzafrah & Taleedi (2022)** explored business intelligeince influence and its various domains "data collection, data warehousing, Data Mining, and the preparation of reports and information dissemination" on job satisfaction among employees at the Saudi Electricity Company in Asir. A questionnaire was distributed to (354) employees to gather data. The findings indicated that the implementation of business intelligence and its related practices significantly affects job satisfaction. Specifically, the dimension of data extraction was identified as having the most significant impact, followed by data analysis, and then the preparation and dissemination of reports. Based on these findings, Binzafrah & Taleedi recommended the adoption of business intelligence systems for data collection to enhance organizational activities and address business challenges, thereby improving job satisfaction among employees.

The study conducted by **Hassan and Kazem (2022)** explored the influence of business intelligence on achieving sustainable development within the Ministry of Science and Technology in Iraq. The domains of business intelligence analyzed included data reliability, system integration with other systems, analytical capabilities, and user accessibility. These were examined in relation to their impact on various aspects of sustainable development, such as human resources performance, work challenges, efficiency, and teamwork. The findings suggested that the application of business intelligence by the ministry significantly contributes to sustainable development goals. Additionally, the study highlighted the organization's capability to adopt new technologies through the use of business intelligence. Hassan and Kazem recommended the critical importance of inputting accurate data, improving and preserving it, due to its significant role in decision-making processes.

The study by **Abu Hammour and Abu Hamda (2022)** focused on assessing the impact of the quality of administrative information—encompassing its relevance, timeliness, accuracy, and comprehensiveness—on the effectiveness of decision-making, which includes decision acceptance, impact, and continuity, as perceived by supervisory managers in Jordanian ministries. The findings indicated a positive relationship between the quality of administrative information and the effectiveness of administrative decision-making. Based on these results, the study recommended enhancing the awareness of supervisory management regarding the importance of monitoring and following up on administrative decisions. This is aimed at improving decision acceptance and ensuring the continuity of making informed administrative decisions grounded in scientific evidence.

The study conducted by **Hamdan & Rahman (2021)** investigated the effect of a business intelligence system, focusing on its domains (online analytical processing, business processes, and competitive intelligence), on organizational agility, which includes sensing agility, decision-making agility, and application agility, at the National University in Hama. To collect data, a questionnaire was distributed among (75) employees, and the analysis was performed using (SPSS) software. The findings revealed a strong and direct correlation between the components of business intelligence and the agility of organizational movements. Consequently, the study underscored the importance of adopting business intelligence systems across all organizations to enhance data collection, processing, utilization, and the dissemination of insights through appropriate channels.

The study by Al-Qahtani and Al-Subaie (2020) focused on assessing the impact of technical leadership and its correlation with decision-making effectiveness measured through (decision quality, decision acceptance by stakeholders, and timing) among leaders of public education schools in Dammam. The findings indicated that the extent to which these leaders adopted technical leadership practices was high, and similarly, the level of decision-making effectiveness among the leaders of public education schools in Dammam was notably impactful. Based on these outcomes, the study emphasized the importance of reinforcing technical leadership as a means to enhance the effectiveness of decision-making processes.

The study conducted **by Al-Jubouri and Al-Jumaili (2019)** explored the relationship between business intelligence and its components (Data Warehouses, Data Mining, data operations, real-time data processing, and information display techniques) in fostering organizational excellence at the University of Kirkuk. Employing a descriptive analytical method, the researchers designed a questionnaire that was distributed among (40) managers at the university. The collected data were analyzed using (SPSS) statistical software. The findings highlighted a significant and robust correlation between the variables of business intelligence and the achievement of organizational excellence, underscoring the pivotal role of business intelligence in enhancing organizational performance and capabilities.

The study concluded with several key recommendations, among which the most crucial is for the university administration to endeavor to precisely define the objectives of business intelligence and establish future directions. This strategic approach is aimed at significantly contributing to the achievement of organizational excellence, ensuring that the deployment and utilization of business intelligence practices are aligned with the overarching goals of enhancing performance, innovation, and competitive advantage within the organizational context.

Previous Studies in the foreign context

The study conducted by **Mbima & Tetteh (2022)** sought to examine the effect of business intelligence and supply chain ambidexterityon the operational performance of small and medium enterprises (SMEs) within the emerging economies of Ghana. The findings revealed a significant direct relationship between business intelligence and operational performance. Furthermore, it was discovered that supply chain ambidexterityserves as a

mediating factor in the relationship between business intelligence and operational performance among SMEs. Based on these insights, the study emphasized the critical importance of effective information intelligence, highlighting its positive impact on operational performance and the supply chain. Information intelligence not only enhances company performance but also aids SMEs in capitalizing on opportunities and reconfiguring both tangible and intangible assets for improved competitiveness and efficiency.

The study by **Tong et al. (2021)** investigated the impact of implementing business intelligence and data analytics within the hotel industry in Thailand. The research concluded that business intelligence and data analytics significantly influence business performance. It was identified that business intelligence is crucial for analyzing large volumes of data, thereby facilitating predictive analytics with a focus on enhancing customer satisfaction. business intelligence tools were recognized for their capability to assist companies in conducting thorough analyses, monitoring key performance indicators, and generating precise reports. These tools enable analysts to transform their proposals into actionable strategies by effectively communicating their findings to stakeholders. Moreover, the insights derived from business intelligence have the potential to impact decision-making across various departments and functions within organizations. Such insights are instrumental in improving marketing strategies, sales approaches, and customer service practices, thereby fostering a competitive edge in the business landscape.

Asikhia's (2021) research aimed to explore the connection between decision-making effectiveness and organizational excellence, employing a content analysis approach that involved reviewing prior scientific literature. The findings underscored that for administrative decisions to effectively stimulate organizational excellence, practitioners need to circumvent decision-making pitfalls by properly focusing on teamwork and collaborative efforts within their organization.

The study concluded that effective decision-making is indispensable for organizations aspiring to surpass global competition and sustain interactive relationships with customers and other key stakeholders. Consequently, it is recommended that managers should consistently embrace innovative ideas to foster continual improvement in organizational excellence.

De Andreis's (2020) study focused on analyzing the development of healthier and more effective decision-making processes within teams to achieve optimal solutions and navigate uncertainties. The study emphasized that decision-making involves selecting from potential solutions to problems through either intuitive or logical methods, or a blend of both. It explored decision-making in environments characterized by complexity, time pressure, uncertainty, ambiguity, and change, suggesting that a collective team approach, as opposed to individual decision-making, could yield more favorable and positive outcomes. The research underlines the significance of collaborative efforts in enhancing decision quality and effectiveness in challenging situations.

Theoretical Framework
The first domain – "Business Intelligence" (BI)

Business Intelligence is known in the English language as (BI), which is an abbreviation for (Business Intelligences). Researchers have differed over the definition of the term due to their differences in scientific backgrounds or the angle from which they view this concept.

Abbas (2018) believed that business intelligence is an advanced system that seeks to benefit from all organizational and technological capabilities of advanced information and applications.

As for Al-Jubouri and Al-Jumaili (2019), they defined business intelligence as the way to solve problems and make decisions, especially since the business environment suffers from an overload of information, which made business intelligence technology an important factor for doing business because of its ability to mine data, process it onlinely, and prepare reports.

Business Intelligence is more than just a set of software; the value of business intelligence comes from the processes of providing actionable knowledge to end users, building businesses based on the knowledge edge, and

assisting those in power to take action (Loshin, 2013). The goal of business intelligence is to collect appropriate and correct information at the right time and in the right way to make the correct decisions (Fattoche & Bahbah, 2020).

The Significance of Business Intelligence
The significance of business Intelligence has grown alongside the increase in competition and the pressures faced by business organizations from their competitors. This is attributed to the capability of business intelligence to enhance organizational performance and ensure their continued presence in the market.

Sharma and Rathore (2022) highlight that business intelligence can furnish new business insights as well as predictions based on analysis, aiding managers in their decision-making processes.

The importance of business intelligence appears in its ability to anticipate changes in the environment, by observing any changes and acquiring new opportunities; as business intelligence within its ability to make interactive analysis and extracting statistical data capable of processing by those applications any activities of the organization such as; production, Financial operations etc.., this leads to to making netter quality decisions through higher accurate information at the right time and place (Turban et al., 2010).

Al-Ghamdi and Aqili (2022) added that business intelligence is important for all sectors, including marketing, law, engineering, and more; due to its potential to enhance organizational performance, since it helps in developing human resources and enhancing the quality of services as well as strategic management in order achieve competitive advantage and organizational entrepreneurship sought by organizations.

Domains of Business Intelligence
Data Warehouse: Huge analytical database, working as a warehouse, as it stores compatible, detailed, summarized, historical and current data, the data stored in the warehouse can be accessed in a flexible and analytical way by using a variety of front end tools, it is easy to use in accessing and extracting Data (Arshad, 2012, 28). Further, it is used to collect Data from different sources in one integrate database, which is mostly the data warehouse, this for reading only, and it is used to make decisions and also used as a warehouse to archive information by time, the Data warehouse can be used to support customers Data analysis to enhance decision making process (O'leary, 2011).

Data Mining: Exploring Data or discovering knowledge is another name for extracting Data, as it works on analyzing Data from different perspectives and synthesizing them to be used to increase the organization's income or even reduce its costs (Cristescu, 2016). It helps in enhancing knowledge of commercial processes and new trends in the market , it has a main role in advertising market polices for businesses and in decision making; this helps the organization in reducing repeated errors and increasing business sustainability, moreover; helps in acquiring knowledge of market environment and the current status of business environment (Arghir et. Al, 2019).

Online analytical process: Described by Rumondor and Irawati (2019) as a system and tool for dynamic data analysis within an organization, it involves stages like creating data analysis models, processing, displaying, and formulating data. Essential steps include collecting data, working on complex queries, historical data, and storing data in multi-dimensional charts. Despite its complexity, it is user-friendly, offering access from many perspectives and distributed in layers called domains (Cristescu, 2016). It's beneficial for dynamic data analysis, quick access to a large volume of data, synchronizing data sources from multiple databases, and historical analysis based on time series (Arghir et al., 2019).

Report Preparation: as mentioned by Bhatt et al. (2017) primarily visualizes data through designing charts, graphics, and building dashboards to display business metrics and key performance indicators. Preparing reports mostly based on the historical Data, which helps the organization to gain perspectives about what had happened in the past, so decisions can be made, however, the current business markets can change, and the buying habits of customers can change too, then the businesses need analytical reports providing Data about the work in the resent time (Baboo & Parbhu, 2013).

"The second domain: Effectiveness of decision-making"

Decision making is considered to be the true essence of the administrative process, since the decisions made in the organizations forms a great importance for all the workers in the organization, that means, as the decision appears to be correct it is reflected in the success of the organization and its ability to continue and develop, because of its connection to the effectiveness and the soundness of the decisions made (Bilal& Al-Omari, 2019).

The decision is defined as the selection between two or more alternatives, if you have one alternative you haven't any decision, and decision making is one of the special characters tics of leadership, it is worth to mention, the decision quality is based on data and information quality not on it quantity (Malhotra & Gosain, 2006).

The accuracy, reliability, and relevance of information to the problem at hand significantly enhance the quality of decisions across all administrative levels within an organization (Muhammad et al., 2021).

Hallo and Abu Ain (2022) emphasized that decision-making requires specific specifications and characteristics, underlining the necessity for decisions to be implementable and flexible to minimize negative impacts and enhance positive outcomes.

Decision making includes selecting the suitable solution for the problem between many alternatives, through defining the problems, developing and analyzing alternative solutions and selecting and executing the best solutions, finally; evaluating the decision quality (Yousfi & Addad, 2020).

The importance decisions emerges on the level of individuals and human groups, as it is linked to human daily work, as individuals are the center of decisions subject, whether for the administrative leaders who make the decision or for the subordinates who are the target of this decision. Furthermore, stopping the making of decisions, whatever their type, will inevitably lead the disruption of work and preventing activities, which means the death of the organization (Kanaan, 2011, 7-9).

Yaghi (2010,4), referencing Herbert Simon, encapsulated the essence of management as "making decisions and making decisions is management," illustrating that organizational behavior is a manifestation of the decision-making processes occurring within an organization. Despite the plethora of definitions by management scholars, two fundamental elements are crucial for a decision: the presence of a specific situation presenting multiple resolution paths and the necessity to make a conscious choice among the available alternatives (Kanaan, 2011,84).

Types of administrative decisions in organizations

There are many classifications of decisions in the orgnizations, the most important (Al-Tarawneh, 2014, 245-280):

- **Classification according to the organization's functions:** This includes decisions related to production and manufacturing, sales, marketing, human resources management, and other functions such as relationship management, comprehensive quality management, knowledge management, and research and development management.
- **Classification according to the circumstances or environment of the decision:** This classification divides decisions into those made under certainty, under risk, and under uncertainty, highlighting the varying degrees of information and predictability associated with each decision-making scenario.
- **Classification according to organizational level:** Decisions are categorized as strategic, administrative, or operational, reflecting their scope, impact, and the level of management involved in making these decisions.
- **Classification according to the possibility of their programming:** This distinguishes between programmed decisions, which follow a routine or standardized process, and non-programmed decisions, which are made in response to unique or unforeseen situations.
- **Classification according to the time they were made:** Decisions are identified as proactive, which are made in

anticipation of future events, or responsive, which are made in reaction to events that have already occurred.

- **Classification according to the methods of making them:** This includes standard or quantitative decisions, which rely on numerical data and analytical models, and descriptive or qualitative decisions, which are based on judgment, experience, and qualitative analysis.
- **Classification according to leadership style:** Decisions are described as either individual, where a single leader makes the decision, or group, where decisions are made collectively.

Stages of Admisnitrative decsoins making

Most decsions go through several stsges before their final announcement, those stasges are similar for most of the reserchers, those stages are (Hussein, 2011, 22-25):

1. **Identifying the Problem:** This initial stage involves recognizing and diagnosing the problem, studying its symptoms, collecting useful information, and then analyzing this information to understand the problem fully.
2. **Searching for Alternatives:** In this phase, information about each possible alternative is gathered. Alternatives that do not align with the goal are eliminated, and those that could potentially achieve the objective are examined more closely.
3. **Comparing Alternatives:** At this stage, it's essential to assess the advantages and disadvantages of each alternative. This involves determining how well each alternative meets established criteria to facilitate comparison.
4. **Choosing the Appropriate Alternative:** This step involves selecting the most suitable alternative that accomplishes the desired outcome at the lowest cost, considering the analysis conducted in the previous stages.
5. **Implementing the Decision:** To effectively implement the decision, it's crucial to financially and morally motivate employees and encourage their participation in the decision-making process. This includes involving them in the selection of the appropriate alternative to ensure their commitment to the decision.
6. **Follow-up and Monitoring:** The final stage requires monitoring the implementation of the decision to identify any deviations from the plan. This involves collecting, examining, and analyzing information to assess the outcomes of the selected alternative and ensuring that the implementation aligns with the initial planning.

These stages underscore the systematic approach to decision-making in organizations, emphasizing the importance of thorough analysis, employee involvement, and continuous monitoring to achieve successful outcomes.

Decision ethics

Decision making process is not an easy task, it hold great responsibility for the necessity of observing ethics limits, held by the manager, as it has effects and consequences; this imposes on decision makers to make sure that the decision is legally and ethically sound, ensuring that its publication in local newspapers does not result in negative effects on those concerned, their families, or the organization itself; the manager has the right to follow some standards for the decision to be ethically sound, among those standards: the gained benefits for concerned people, rights and responsibilities and their respect in the decision, justice, as well as specialization which, means that the decision falls within the responsibility of its maker (Al-Ghalbi & Al-amri, 2011, 319).

The concept of the effectiveness of decision-making

The effectiveness of decision making is the most important in the process, as it expresses the accuracy of conducting business, the methods used in the process and the results; further, it points out the contribution of decisions in achieving the organization's goals , as this includes the acceptance of the decisions by subordinates, Boutros (2009-11), Mentioned several factors

that make the decision effective, those are adopted by the current study as follows:

1. **Proper timing of decision making.**
2. **Ease of implementing the decision.**
3. **Accepting the decision from the concerned employee.**

Proper timing of decision making

Selecting the suitable time to make decisions leads to the best results, therefore, the manger must have what is called (time sense), expressing the manager's ability to induce events and predict the future, which gives the manager the opportunity to seize the best opportunity to announce and make the decision, selecting the appropriate time to announce and make the decision requires awareness of all the surrounding social and political circumstances, including the prevailing relations between the workers in the organization and the circumstances that the organization is going through(Kanaan, 2011).

The process of decision making is a difficult thing by time, there must be flexible tools to help us in making decisions in the proper time, it is important to try to take the necessary measures to respond in abnormal cases and in time critical situations(Horvitz & Barry, 2013). Flifel & Niri (2023) emphasized that decision making process is a rationale process and must choose the best decision to achieve the desired goals in the shortest time within the lowest costs.

Ease of implementing the decision

Implementing the decision requires many steps, the most important are; the required time for implementations, implementations stages, the individuals who will undertake the implementation process, the responsibility of each of them, and the methods of implementation, it also requires specifying the material and human resources necessary for this; it is worth noting the necessity of specifying preventive measures to prevent any deviations during implementation (Kanaan, 2011).

The most important process in decision making is acquiring support , not only for decision making, but also for facilitating decision implementation, as the implementation process without enough support may ends without any implementation of the decision, practically; to ensure the implementation of decisions it must be studied thoroughly and taking the neededmeasures for successful implementation, the process of implementing the decision is a difficult process full of pressure and deviation (Kourdi, 2011, 141).

Kashada & Ali (2016) highlighted the significance of employing individuals with strong communication skills to facilitate effective decision implementation, as well as the importance of ongoing training. For a decision to be smoothly implemented and met with minimal resistance, it is crucial that all relevant parties are fully informed about the decision (Itoh & Morita, 2019).

Accepting the decision from the concerned employee

The sound and clear decision must take into consideration the comprehensive vision of the surrounding environment, it must not be limited to the reality of the current problem, which requires achieving balance between risks and advantages that can be gained from accepting the decision, first, the closest and most suitable decision must be taken to ensure acceptance from the concerned people (Sweidat and Al-Sheikh, 2017).

Furthermore, accepting the decision is achieved through the participation of concerned people in decision making, the acceptance processes is an important thing for the success of the implementation of the decision, it is evident that the participation of decision making helps in providing information between the concerned members and generates a positive and encouraging atmosphere among them(Al-Rubaie and Ahmed, 2020).

Preparing both internal and external environments is vital for the acceptance process (kanan, 2011, 168-169):

- **Internal Environment:** This involves readying supervisors and department heads for the decision's acceptance and implementation. This preparation could include announcing the decision during a meeting, clarifying the reasons and motivations behind it, and

encouraging subordinates to carry it out.

- **External Environment:** This pertains to cultivating public opinion to support the decision in a manner that aligns with the citizens' desires, facilitating response, cooperation, and execution. Ensuring public support also helps to prevent opposition to the decision.

- **Study methodology**

Type and nature of study:

This study is characterized as applied in nature and illustrative in purpose, as it aims to elucidate the influence of business intelligence on effectiveness of decision-making within the International Arab Islamic Bank. The research is conducted in the bank's natural setting, making it an unplanned study that adapts to the existing environment. Regarding its temporal scope, the study is cross-sectional, examining a sample at a single point in time (Al-Najjar et al., 2020). Additionally, in terms of methodology and procedures, it qualifies as a field study, engaging directly with the environment and subjects under investigation.

Study Population

The study population comprises all managers at the senior administrative levels within the Islamic International Arab Bank. The unit of analysis for this study includes (50) managers who hold positions in the bank's senior management.

Data Collection Method

The study employed two primary methodologies for data collection:

First: Secondary Sources The use of secondary sources encompassed an extensive review of relevant Arab and international literature, including university dissertations, articles, periodicals, research papers, and prior studies that have addressed the topic under investigation. This approach provided a foundational understanding and context for the study.

Second: Primary Sources As a tool for primary data collection, a specially developed questionnaire was utilized to fulfill the objectives of the study. The questionnaire was structured into three parts:

- **The first part** aimed at gathering demographic and functional information from the study sample members, covering variables such as gender, age, educational, and years of experience.

- **The second part** focused on assessing the independent variable, business intelligence, through its specific domains, including data warehousing, Data Mining, Online Analytical Processing, and Report Preparation.

- **The third part** aimed to measure the dependent variable, the effectiveness of decision-making, across its domains, which encompass the Proper timing of decision-making, Ease of implemention the decision, and the acceptance of the decision by the concerned employee.

Tool realiability:

To ensure the reliability of the study tool, the Cronbach Alpha test was conducted for the study variables. Table (1) presents the Cronbach Alpha values for all variables.

Table 1. Cronbach's Alpha coefficients for the tool domains

Domain	Items	Cronbach's Alpha
Business Intelligence	16	.890
Effectiveness of Decision Making	12	.777
Total	28	.896

It is shown in Table (1) that main variables internal consistency coefficients exceed (0.70). This demonstrates high internal consistency among the items of the study variables, as well as their high reliability (Al Najar et al., 2020, 151)

Data Analysis and Hypotheses Testing

Description of the Job and Demographic Characteristics

Demographic Characteristics

Table 2. Distribution of sample members according to variables (gender, age, educational qualification)

Variable	Frequency	Percentage
Gender Male	40	%80
Female	10	%20
Age Less than 30 Years	12	%24
30 – less than 40 Years	12	%24
40 – Less than 50 years	26	%52
50 – Less than 60 years	0	0
60 Years or more	0	0
Educational Qualificatoin		
Bachelor	43	%86
Higher Diploma	3	%6
Master	4	%8
PhD	0	0

Source: Prepared by the researchers based on the statistical analysis program
Description of job characteristics.

Table 3. Distribution of sample participants according to the variable (years of experience and job level)

Variable	Frequency	Percentage
Years of Experience		
Less than 5 years	3	%6
5 – less than 10 years	10	%20
10 – less than 15 years	11	%22
15 – less than 20 years	17	%34
More than 20 years	9	%18

Source: Prepared by the researchers based on the statistical analysis program.
Varaibles relative importance: "The relative importance was adopted so that (1) - less than (2.34) is low, (2.34 - less than (3.67 is medium), and (3.67 - 5) is high".

Relative Importance of Business Intelligence:

Table 4. *Relative Importance of* business intelligence

	Variable	Mean	Standard Deviation	Rank	Relative Importance
1	Data Wharehouses	3.88	.602	4	High
2	Data Mining	3.99	1.05	3	High
3	Online Analytical Processing	4.44	.547	1	High
4	Report Preparation	4.25	.529	2	High
	Business Intelligence	**4.14**		**High**	

It is clear from the results of Table (4) that the relative importance of business intelligence was high.

The relative importance of effectiveness in decision making:

Table 5. The relative importance of effectiveness of decision-making variables

	Variable	Mean	Standard Deviation	Rank	Relative Importance
1	Proper timing of decision making	3.92	1.00	1	High
2	Ease of implementing the decision	3.72	1.03	3	High
3	Accepting the decision from the concerned employee	3.88	.602	2	High
	effectiveness of decision-making	**3.84**		**High**	

It is clear from the results of Table (5) that the relative importance of effectiveness decision-making was high.

Testing the study hypotheses
Main Hypothesis

There is no statistically significant effect at a significance level ($\alpha \leq 0.05$) of Business Intelligence in its domains (Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation) on the effectiveness of decision-making in its combined domains (Proper timing of decision making, Ease of implementing the decision, and Accepting the decision from the concerned employee) at the Islamic International Arab Bank.

The master hypothesis was analyzed by "standard multiple linear regression":

Table 6. Model summary and analysis of variance for the main hypothesis

Model	Model Summery [b]		ANOVA[b]		
	R	R²	F	DF	Sig F
1	.974[a]	.948	206.501	4	0.000[a]

a. Predictor: (Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation).
b. Dependent variable: Effectiveness of Decision-Making.

Table (6) shows that that the value of the coefficient of determination reached (R^2=.974) at (4) degrees of freedom, and that the value of (F=206.501) was at a significant level (sig=0.000), and this confirms the significance of the regression. It indicates that "Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation" together explained (94.8%) of the variance in the effectiveness of decision-making.

Table 7. Coefficient analysis results

Model number	Model	Coefficient[a]		
		β	T	Sig T
1	Proper timing of decision making	.354	8.939	.000
	Ease of implementing the decision	.809	21.506	.000
	Accepting the decision from the concerned employee	-.122	-3.374	.002
		-.133	-3.851	.000

Dependent variable: Effectiveness of Decision-Making.

All coefficients are significant because, as Table (7) demonstrates, all values for the various coefficients and at various (T levels) were at a significance level range between (0.000-0.002), which is (α ≤0.05) and significant.

As a result, we reject the primary null hypothesis and accept the alternative, which claims that business intelligence in the domains of "data warehouse, data mining, online analytical processing, and report preparation" has a statistically significant impact on decision-making effectiveness at a significant level (α≤0.05). In the Islamic International Arab Bank, with its combined domains of "appropriate timing of decision making, ease of implementation, and accepting the decision from the concerned employee."

First sub-hypothesis

There is no statistically significant effect at a significance level (α ≤ 0.05) of BI in its combined domains (Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation) on the Proper timing of decision-making at the Islamic International Arab Bank.

Table 8. Model summary, analysis of variance, and coefficients for the first sub-hypothesis

Model Summery					Coefficients^b		
		ANOVA^b					
R	r^2	F	Df	Sig F	β	t	Sig t
.598^a	.358	26.737	1	.000^a	.598	5.171	.000

a. Predictor: Business Intelligence.
b. Dependent variable: Proper timing for decision making.

Table (8) and from the outline of the model that the value of (r =.598), which that means there is an average correlation between business intelligence and the proper timing for decision-making. It is also clear that the coefficient of determination for the business intelligence variable reached (r²=.358), that means the business intelligence actions explained (35.8%) of the variance in the appropriate timing for decision-making, and from the analysis of variance table it was reached that the value of (F=26.737) was at a significant level (Sig=0.000) at (1) degree of freedom, and this emphasize the significance of the regression.

The coefficients shown from table the value of (ß=.598) and the value of (t=5.171) are at a significance level (sig=0.000). This enhance the significance of the coefficient, and based on that, we do not accept the first sub-null hypothesis, and we accept the alternative sub-hypothesis which states However, "there is a statistically significant effect at a significant level (α≤0.05) of Business Intelligence in its combined domains (Data Warehouse, Data Mining, Online Analytical Processing, and Reporting Preparation) on the proper timing of decision-making at the Islamic International Arab Bank".

Second sub-hypothesis

"There is no statistically significant effect at a significance level (α ≤ 0.05) of Business Intelligence in its combined domains (Data Warehouse , Data Mining, Online Analytical Processing, and Reporting Preparation) on the ease of decision implementation at the Islamic International Arab Bank".

Table 9. Model summary, analysis of variance, and coefficients for the second sub-hypothesis

Model Summery					Coefficients^b		
		ANOVA^b					
R	r^2	F	Df	Sig F	β	t	Sig t
.554^a	.307	21.303	1	.000^a	.554	4.615	.000

a. Predictor: Business Intelligence.
b. Dependent variable: ease of implementing the decision.

Table (9) and from the abridgement of the model that the value of (r =.554) that means there is an average correlation between business intelligence and the ease of implementing the decision. It is also clear that the coefficient of determination for the business intelligence variable found (r²=.307) and this means that business intelligence It explained (30.7%) of the variance in the ease of implementing the decision, and from the analysis of variance table it was reached that the value of (F=21.303) was at a significant level (Sig=0.000) and at (1) degree of freedom, and this emphasize the significance of the regression.

The coefficients shown from table the value of (ß=.554) and the value of (t=4.615) are at a significance level (sig=0.000). This confirms the significance of the coefficient.

Therefore, we do not accept the second sub-null hypothesis, and we accept the alternative sub-hypothesis which states: " There is a statistically significant effect at a significant level (α≤0.05) of Business Intelligence (Data Warehouse, Data Mining, Online Analytical Processing, and Report Preparation) on the ease of decision implementation at the Islamic International Arab Bank".

Third sub-hypothesis

"There is no statistically significant effect at a significance level (α ≤ 0.05) of Business Intelligence in its combined domains (Data Warehouse, Data Mining, Online Analytical Processing, and Reporting Preparation) on Acceptance of the decision by the concerned employee at the Islamic International Arab Bank".

Table 10. Model summary, analysis of variance, and coefficients for the third sub-hypothesis

Model Summery		ANOVA^b				Coefficients^b		
R	r²	F	Df	Sig F	β	t	Sig t
.605ª	.366	27.726	1	.000ª	.605	5.266	.000

a. Predictor: Business Intelligence.
b. Dependent variable: acceptance of the decision by the concerned employee.

Table (10) and from the summary of the model that the value of (r=.605), which means that there is a high correlation between business intelligence and Accepting the decision from the concerned employee. It is also clear that the coefficient of determination for the business intelligence variable reached (r²=.366), which means that business intelligence explained (33.6%) of the variance in Accepting the decision from the concerned employee, and from the analysis of variance table it was found that the value of F = (27.726) at a significance level (Sig = 0.000) and at a degree of freedom (1), and this confirms the significance of the regression.

It was also shown from the coefficients table that the value of (ß=.605) and the value of (t=5.266) are at a significance level(sig=0.000). This confirms the significance of the coefficient. Therefore, we do not accept the third sub-null hypothesis, and we accept the alternative sub-hypothesis which states: " There is a statistically significant effect at a significant level (α≤0.05) of Business Intelligence in its combined domains (Data Warehouse, Data Mining, Online Analytical Processing, and Report Prepartion) on accepting the decision from the concerned employee in the Islamic International Arab Bank".

Results and Recommendations

- **Gender:** The results of the study showed that the number of male managers reached (80%), while the number of female managers reached (20%)of the sample. This is due to the responsibilities placed on females outside working hours, which makes them less likely to hold senior positions. In addition, job turnover is greater among females than males.
- **Age Group:** It was found that ages (40) to less than (50) ranked first as an active and experienced group capable of interacting and working under new and stressful circumstances.

- **Academic Qualification:** It was found that the largest percentage was for holders of a bachelor's degree, as it reached (86%). This is one of the criteria for acceptance into the job at the bank, which banks always seek to attract because the possibility of developing, developing, and retaining them will be guaranteed. This also indicates the career path that the employee will take by virtue of experience and seniority for senior positions.

- **Years of Experience:** It was found that the category from (15) years to less than (20) ranked first, which is normal, as the higher levels enjoy seniority, high experience, and accumulated knowledge during these years.

Discussing the results of the analysis of the study questions:

1. The results showed that the general relative importance level of the independent variable business intelligence was high, reaching (4.18). All of its domains were high without exception. The Online Analytical Processing dimension ranked first, reaching (4.44), followed by the Report Preparation dimension, with a percentage of (4.25). The Data Mining dimension ranked third, with a percentage of (3.99), and finally, the Data Warehouse dimension came in last place, reaching (3.88). These results align with Al-Khatahtbeh's study (2023), which also found an increase in the relative importance of business intelligence in private hospitals affiliated with the Ministry of Health.

2. Regarding the dimension of the effectiveness of decision-making, the dependent variable, the results indicated that the levels of relative importance of the effectiveness of decision-making in general were high, reaching (3.85). All of its domains were high without exception. The dimension of the proper timing for decision-making ranked first and reached (3.92), followed by the dimension of Accepting the decision from the concerned employee with a percentage of (3.88). In last place was the dimension of ease of implementing the decision, which

reached (3.72). These results are consistent with the study of Al-Qahtani and Al-Subaie (2020), where the relative importance of the effectiveness of decision-making was high in Dammam schools under their leadership.

3. The results of the main hypothesis showed that there is a "statistically significant effect at a significant level ($\alpha \leq 0.05$) for business intelligence with its domains (Data Warehouse, Data Mining, Online Analytical Processing, Report Preparation) on the effectiveness of decision-making with its combined domains (Proper timing for implementing the decision, ease of implementing the decision, accepting the decision from the concerned emplyee) in the Islamic International Arab Bank". These findings are in line with the study of Al-Balawi (2023), the study of Hassan and Kazem (2022), and the study of Al-Jubouri and Al-Jumaili (2019).

4. The results of the first sub-hypothesis showed that there is a significant effect between business intelligence and Proper timing for decision-making at the Islamic International Arab Bank. This indicates that business intelligence affects the appropriate timing for decision-making, which would make the decision more effective and of higher quality, preventing any exacerbation of problems.

5. The results for the second sub-hypothesis showed that there is an effect between business intelligence and the ease of implementing the decision. The availability of necessary data in the respiratory, data mining, online processing, and preparation of reports would facilitate the process of implementing the decision due to the availability, accuracy, and continuous updating of data in the Islamic International Arab Bank.

6. The results of the third sub-hypothesis also showed that there is an effect between business intelligence and the Accepting the decision from the concerned employee. This confirms that what the bank adopts in terms of preparing subordinates to accept the decision indicates caution, accuracy, and fairness when making decisions. This is

made possible thanks to the correct and reliable data provided by business intelligence to decision-makers and subordinates.

Recommendations:

Based on the findings of the study recommends:

- Increasing interest in business intelligence in all its domains at the Islamic International Arab Bank; since it has an impact on achieving competitive advantage, through interest in strengthening the infrastructure; and using the best technology; so that business intelligence is at the highest level at the bank since there is a large number of competitors in the banking sector.

- Enhancing interest in the effectiveness of decision making, because of the sensitivity of decision making, the proper timing for implementing the decision, the ease of implementing the decision, and the acceptance of the concerned employee help to strengthen trust between the decision makers and those affected by the decision, through the participation of subordinates in decisions making through brainstorming sessions; and processes. Persuasion and activating dialogue in the bank to improve transparency.

REFERENCES

Abbas, S. A. (2018). *Business Intelligence and its impact on determining the strategic choice: An exploratory study of the opinions of a sample of employees in the General Company for Electrical* Industries, affiliated with the Iraqi Ministry of Industry. Iraqi Dinars Magazine, 1(12).

Abu Hammour, A., & Abu Hamda, S. (2022). The impact of information quality on the effectiveness of administrative decision-making: A field study from the point of view of supervisory department managers in Jordanian ministries. *Arab Journal of Management, 42*(2), 197-222.

Al-Amiri, M., & Al-Ghalbi, M. (2011). *Management and business*. Wael House for Publishing and Distribution.

Al-Balawi, S. (2023). The impact of innovative leadership on improving Business Intelligence from the point of view of faculty members at the University of Tabuk. *International Journal of Humanities and Social Sciences, (41),* 40-60.

Al-Ghamdi, H., & Aqili, M. (2022). The role of information systems in enhancing business intelligence at King Abdulaziz University. *King Abdulaziz University Journal - Arts and Humanities 30* (3), 179-273.

Al-Jubouri, M. A., & Al-Jumaili, H. A. H. (2019). Business Intelligence and its role in achieving organizational excellence: An exploratory study of the opinions of a sample of managers at the University of Kirkuk. *Tikrit Journal of Administrative and Economic Sciences, College of Administration and Economics, 15*(47).

Al-Khatahtbeh, A. (2023). *The impact of* Business Intelligence *on the quality of services: The mediating role of organizational ambidexterityin private hospitals in Jordan.* [Unpublished doctoral dissertation]. International Islamic Sciences University.

Al-Najar, F., Al-Najar, N. & Al- zoubi , M. (2020). *Scientific reeaserch methods: applied prespective 5ᵗʰ ed.* Amman-Jordan, Dar Alhamd publishing & distribution.

Al-Qahtani, A. & Al-Subaie, O. (2020). Technological Leadership and its Relationship to the Effectiveness of the Decision-Making among Leaders of Public Education Schools in Dammam. *Saudi Journal of Educational Sciences, 68*.

Al-Rubaie, A., & Ahmed, I R. (2020). Indicators of Effectiveness of Strategic Decision And Its Effect in Quality of Banking Service (Applied Research in a Sample of Iraqi Banks). *Journal of Baghdad College of Economic Sciences University, (60).*

Alsaaideh, M. & Sari, A. (2021). Utilisation of Business Intelligence for Data Mining to Influence Decision-Making in Business Organisations. *Turkish Online Journal of Qualitative Inquiry,* 12(7).

Al-Tarawneh, H., & Musa, M. Y. (2014). *Organizational decisions in business organizations.* Dar Al-Ayam for Publishing and Distribution.

Arghir, D. C., Duşa, I. G., & Onuţă, M. (2019). Organizational development through Business Intelligence and Data Mining. *Database Systems Journal*, 10(1).

Arshad,K. (2012). *Business Intelligence & Data Warehousing Simplified: 500 Questions, Answers, & Tips*. Mercury Learning and Information.

Asikhia, O., Asikhia, O., Oladipo, S.,& Fatoke, O. (2021). Effective management decision making and organisational excellence: a theoretical review. *The International Journal of Business & Management, 9(1).*

Baboo, S. S., & Prabhu, J. (2013). Designing Real Time Business Intelligence Reporting for Better Business Insights. International *Journal of Computer Applications, 76(14)*.

Bhatt, S., Aggarwal, S., & Sharma, V. (2017). How To Visualize Your Business Intelligence Report-A Research Based Study. *International Journal of Advanced Research in Computer Science*, 8(7).

Bilal, O., & Al-Omari, A. (2019). The impact of the characteristics of accounting information on the quality of decision-making - a field study in industrial companies in the Dhofar Governorate - the Sultanate of Oman. *Islamic University Journal for Economic and Administrative Studies, 27*(3), 78-99.

Binzafrah, F., & Taleedi, F. (2022). The effect of Business Intelligence practices on job satisfaction in the Saudi Electricity Company in the Asir Region*. Journal of Money and Business*,2(1),107-131.

Boutros, S. (2009). *Decision-making methods*. Dar Al-Raya for Publishing and Distribution.

Cristescu, M. P. (2017). Using OLAP data cubes in Business Intelligence. *Scientific Bulletin*, 21(2), 80-86.

De Andreis, F. (2020). A theoretical approach to the effective decision-making process. *Open Journal of Applied Sciences*, 10(6), 287-304.

Fattoche. S & Bahbah. A (2020). The Integral Role of knowledge Mangment and Business Inttelligence with *competitive Intelligence. Econmic and Management research journal*,13 (3), 165-184.

Flifel, A., & Niri, A. A. (2023). The impact of time management on making and taking managerial decisions: A study of commercial banks operating in the municipality of Zliten. *Finance and Business Economies Review, 7*(1), 283-300.

Halalu, E. & Abu Ghaben, A. (2022). Cloud Computing and Its Relationship to The Quality of Administrative Decisions Among Administrative Leaders in The Palestinian Ministry of Health in The Southern Governorates*. Journal of Economic Administrative and Legal Sciences*, 26(6), 36-62.

Hamdan, H., Rahman, A. (2021). Effect of Business Intelligence System on Organizational Agility: Evidence from Syria. *Journal of Southwest Jiaotong University*, 56(4).

Horvitz, J., & Barry, M. (2013). Display of information for time-critical decision making.arXivpreprintarXiv:1302.4959. https://doi.org/10.48550/arXiv.1302.4959.

Hsan,.A. & Kadhim,.S. (2022). The role of Business Intelligence in achieving sustainable development an applied study at the Ministry of Science and Technology. *Journal of Education College Wasit University*, 49(1), 491-512.

Hussein, A. (2011). *Administrative Decision Theory*. Zahran Publishing and Distribution House.

Itoh, H., & Morita, K. (2019). Information Acquisition, Decision Making, and Implementation in Organizations. *Management Science, 69*(1), 446-463.

Kanaan, S. (2011). *Taking administrative decisions between theory and application*. House of Culture for Publishing and Distribution.

Kashada, A., & Li, H (2016). The Impact of Organizational Aspects on Successful Adoption of Decision Support System in Developing Countries: The Context of

Libyan Higher Education Ministry. J*ournal of Advance Public Policy and International Affairs (JAPPIA), 4*(8).

Kourdi, J. (2011). Effective descion making 10 step to better descion making and proplem solving. Marshall Cavendish Business.

Loshin, D.(2013). *Business Intelligence and Information Exploitation 2nd*. Elesevier Inc. https://doi.org/10.1016/B978-0-12-385889-4.00001-6.

Malhotra, N., & Gosain, A. (2006). Better Quality of Decisions: Approaches to more Effective Analysis. In IMECS (pp. 317-323).

Mbima, D., & Tetteh, F. K. (2022). Effect of Business Intelligence on operational performance: the mediating role of supply chain ambidexterity. *Modern Supply Chain Research and Applications.* https://doi.org/10.1108/MSCRA-08-2022-0020 .

Muhammad, I., Masoud, M. S., & Al-Hamali, A. (2021). *The role of administrative information systems in the quality of administrative decisions*. University, 34.

O'Leary, D. E. (2011). Building and evolving data warehousing and Business Intelligence artefacts: The case of Sysco. *Intelligent Systems in Accounting, Finance and Management, 18*(4), 195-213.

Rathor, S. & Sharma, K. (2022). Improving Healthcare Delivery System using Business Intelligence. *Journal of IoT in Social, Mobile, Analytics, and Cloud*, 4(1), 11-23.

Rumondor, T., & Irawati, C. (2019). Designing an Online Analytical Processing (OLAP) for Project Feasibility Study in Siau Tagulandang Business Intelligence aro District. *International Journal of Innovative Science and Research Technology*, 4(12), 620-625.

Sweidat, A., & Al-Sheikh, F. (2017). The impact of creative thinking on the effectiveness of the administrative decision-making process: A field study from the point of view of senior management and the middle in insurance companies operating in Jordan.

Jordanian Journal of Business Administration, 13(1).

Tong-On, P., Siripipatthanakul, S., & Phayaphrom, B. (2021). The implementation of Business Intelligence using data analytics and its effects towards on performance in the hotel industry in Thailand. *International Journal of Behavioral Analytics*, 1(2).

Turban E., Sharda R., Delen D., & King, D. Aronson J. (2010). *Business Intelligence: A Managerial Approach (2nd ed.).* New Jersey: Prentice Hall.

Yaghi, M. A. (2010). *Organizational decision making*. Wael Publishing House.

Yousfi, I. & Addad, R. (2020). Impact of Conflict and Self-esteem on the Quality of Decision Makingin Algerian banks. Strategy & Development Review, 10(4).