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RESEARCH ARTICLE

The Impact of Business Intelligence on Employees Performance in Jordanian Organizations

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ABSTRACT

The increased growth of data in volume and complexity presents a significant challenge for Jordanian organizations. This study explores the impact of Business Intelligence (BI) on employee performance within the Jordanian organizational setting. BI, defined as the process of collecting, analyzing, and presenting data for decision-making in organizations, is suggested as a critical tool for enhancing employee competencies, training effectiveness, and overall job satisfaction. Through a conceptual analysis, the research contends that BI facilitates organizational transforms into learning organizations capable of adjusting to rapid technological change. The findings suggest that effective BI application improves data accuracy, reduces operational errors, and provides employees with reliable information, thereby directly enhancing individual and organizational performance. This study contributes to the literature by contextualizing BI's strategic role in a developing economy and highlights its importance for sustainable development and competitive advantage.

INTRODUCTION

One of the most prominent challenges facing Jordanian organizations is the sheer volume and complexity of data. Therefore, it has become essential to employ business intelligence, which is centered on collecting data from all available sources, storing it, extracting and analyzing the data, and linking it together in order to present it as a clear and understandable information. Business Intelligence BI systems have therefore become a strategic priority for managers, serving as technological infrastructures to support informed decision-making process. It is essential for developing and enhancing employee performance within the work environment, developing the infrastructure of these organizations, and exerting all efforts and harnessing them in the field of technological development and improving organizational performance using business intelligence techniques. Business intelligence has become one of the priorities and most important technological investments for most business managers and IT managers. This is because organizations view business intelligence as more than just measuring and understanding the past performance of any activity in their operations. Currently, business organizations are subject to external forces and challenges that they must deal with and respond to quickly. Within Jordan, where organizations are striving to align with global digital transformation trends, the effective deployment of BI is increasingly viewed as essential beyond its role in retrospective performance analysis, BI is recognized for its capacity to empower employees, enhance training programs, and increase job satisfaction. This is accomplished by providing staff with accurate, timely, and understandable information, which reduces errors and improves operational efficiency. The specific impact of BI on employee's performance in Jordanian organizations remains under-explored despite its recognized importance. Accordingly, this study seeks to address this gap by examining how BI contributes to building learning-oriented organizations that can adapt to external forces and achieve superior employee performance.The importance of this research is highlighted by its treatment of a modern and necessary topic in our current time in light of rapid technological changes. This study addressed a relatively new topic whose use is reflected in the performance of employees and the support of strategic plans to align organizational performance in organizations, making them a model for learning organizations that aim for endless development. It make organizations are able to respond and adapt to modern changes to direct them towards achieving their goals and directing their efforts towards outstanding organizational performance. Based on what was revealed by Shaheen (2007), study the importance of business intelligence lies in enhancing management support in its decision-making process by plummeting deviations and errors in data. This can be achieved by coordination between the data received by the organization from its sources until it reaches the organization's data source, ensuring alignment and integration with agreed-upon decision-making processes. This, in turn, develops employee performance and increases its efficiency, providing them with precise and reliable data that supports their work and saves them time and effort. The remainder of this paper is structured to review the relevant literature on BI and employee performance and the relationship between them and to present the results, followed by a discussion and conclusion.

Business Intelligence

The Concept of Business Intelligence

Business intelligence is a modern field and one of the new specializations that explores the alignment between business, intelligence, and technology. This alignment involves data, its processing, and its transformation into useful information for organizations and their employees. Business intelligence receives significant attention in organizations and the practices of their employees. The scientist Hans used the concept of business intelligence in 1958 at IBM, a organization specializing in computer and software manufacturing, as an idea that was not implemented at the time. The idea was based on automating a specific system that would allow storing, processing, and disseminating information through organization (Luhn, 1958). In 1989, Gartner defined the term Business Intelligence as “an all-encompassing term that includes the people, processes, applications, tools, and technologies necessary to organize, access, and analyze information to improve decision-making, manage performance, and support strategic, operational, and tactical planning” (Hostmann et al., 2006). The study (Ahmad et al., 2015) indicated that business intelligence and its efficiency are linked to employees who possess the necessary skills to deal with business intelligence that contributes to raising the efficiency of business and its competitiveness. Business intelligence is a concept in business management that refers to an organization's ability to add more intelligence to the way it operates. This enables access to knowledge that aids in decision-making, improves operational performance, and enables the organization to respond to changes and challenges, transforming them into opportunities (Rizzi, 2009).Business intelligence is a set of techniques and practices for collecting current and historical raw data, then integrating and analyzing it to present it in the form of reports, summaries, and key charts. This helps individuals and organizations build a valuable and actionable vision, aiming to enhance their strategic capabilities for making integrated decisions and gaining a competitive advantage (Business Intelligent, 2023). Al-Batrik (2023) defined business intelligence as a set of tools that provide easy and rapid access to information about an organization's current situation. This is achieved by depending on available data, which is processed and analyzed to provide insights that contribute to decision-making, enhance planning, and offer future perspectives.It can be concluded from the above that many researchers have addressed the concept of business intelligence from different perspectives, but they all agree that it comprises a set of processes for collecting, storing, processing, and reviewing data, which is then transformed into information that becomes knowledge, helping to enhance employee performance and decision-making process.

Types of Business Intelligence

According to a study by Al-Areeqi (2012), business intelligence is divided into three types within organizations: strategic intelligence, tactical intelligence, and operational intelligence.

First

Strategic Business Intelligence focuses on managing long-term plans and objectives and is used by senior managers to improve the development of strategic plans and goals.

Second

Tactical Business Intelligence focuses on managing initiatives and tactical actions through whic strategic objectives are implemented. It is used by business analysts and line managers, and is considered an extension of strategic intelligence.

Third

Operational Business Intelligence focuses on managing and improving the daily activities of the organization, carried out by employees who interact with customers and utilize business intelligence. Through it, customers can be responded to quickly, their problems resolved, and their needs met in a timely manner.

The following are the stages of implementing business intelligence

First Stage

Gathering primary data from various sources within the organization, both external and internal.

Second Stage

Storing the collected data in a data warehouse for safekeeping and preparation for the next stage.

Third Stage

Data extraction using techniques that allow for the identification and integration of all data, such as data mining. This involves extracting data and selecting the most relevant pieces that the organization needs to move to the next stage.

Fourth Stage

Analyzing all the data obtained in the previous stages and processing it to transform it into information.

Fifth Stage

Presenting the resulting information. This stage is considered the most important in business intelligence because its effectiveness and application are evaluated based on several criteria related to the information presented, namely its accuracy, validity, and significance.

Employee Performance

The adoption of any electronic services in organizations depends on the extent to which employees accept and use them, regardless of their job level or administrative position within the organization, whether they are managers or employees who deal directly or indirectly with customers. Their lack of awareness of the benefits offered by electronic services and their failure to keep up with modern technology is a reason for their reluctance and reluctance in adopting and using them. Furthermore, the presence of managers and employees in organizations who advocate for, support the use of information technology, and possess a spirit of innovation, creativity, and initiative has a direct and positive impact on the decision to adopt electronic services in organizations (Khilaf, 2024). The implementation of the organization's activities and services depends on employees performing their assigned responsibilities and tasks. If this is done according to what has been determined by the subordinates in the organization, it will contribute to the organization reaching and achieving its goals. Accordingly, those concerned with setting strategies related to human resources always attract the best employees with high and flexible skills that the organization can refine towards achieving their performance goals (Attia and Atrouz, 2021). It is shown that the efficiency of employee performance is important for organizations, given that the employees are the basis of all operations and activities in the organization, as technology, no matter how modern, does not benefit the organization without directing employees to it in the best and correct way, giving it orders and programming it within a successful methodology.

The Concept of Employee Performance

Employee performance is a concept divided into two parts: performance and employees, as follows:

Part One: Performance. In Arabic, performance is defined as the execution of something, i.e., the performance of an action. It is the action that is practiced or the activity that is accomplished now or has been accomplished previously (Khilaf, 2024). The origin of the word performance comes from the Latin word "Performance," which is defined as "the completion, performance, and accomplishment of something" (Attia and Atrouz, 2021). The French dictionary (Larousse) considers performance to be an English word derived from the old French word "Per former," meaning "to complete, accomplish, or perform" something. From an administrative perspective, performance is defined as the fulfillment of job duties and responsibilities according to the expected level of performance from a competent and trained employee. This level can be determined through performance analysis, which involves studying the amount of time and work the employee spends and establishing a fair relationship between them (Badawi, 1982, p. 310).

From the above, it is clear that the concept of performance embodies the execution of tasks, activities, and duties in a way that achieves and contributes to reaching the goals and objectives set by management. It is an effort exerted and performed to accomplish a specific task or activity, and its efficient and effective execution is linked to achieving the organization's goals and objectives.

Part Two: The concept of employees has been defined as the human element or human resource, meaning all employees in the organization who contribute to achieving the organization's goals. According to the Dictionary of Social Science Terms, employees are "every male and female who performs manual or non-manual work in exchange for wages, regardless of the type of service provided or their position within the organization, whether they are an employer or under someone's authority or supervision" (Badawi, 1982, p. 239). Employees have also been defined as the available human element present in the organization, meaning all its employees, whether managers or subordinates. The human element in organizations is viewed based on its competence. Previous studies have considered employees to be the foundation and cornerstone of organizations, as the success of organizations depends on the competence of their human element, i.e., the employees within them. Therefore, organizations must prioritize their employees by providing all their needs, refining and enhancing their skills, and creating a suitable work environment to ensure their satisfaction to motivate them to achieve high-quality performance.

The Importance of Employee Performance

The importance of employee performance stems from its being the cornerstone of the organization. It is through employee performance that they attempt to achieve the organization's goals and objectives. Employees are considered the soul of the organization when they carry out their assigned tasks and duties, working towards the results planned to be set by management (Khalaf et al., 2019). Employees are the most important and valuable asset an organization possesses, contributing to its distinction and making it a model of a learning organization and a benchmark for achieving excellence in the business environment. This distinction contributes to and influences raising the level of human competencies that organizations possess and that they wish to attract, and is a reason for their development and ensuring their continuity and success (Awad, 2021). However, any deficiency in employee performance, or failure to achieve optimal performance levels, will have negative and unintended consequences for the organization. Therefore, organizations constantly strive to explore and develop methods that support and improve employee performance through empowerment and training, as well as gaining employee satisfaction, in order to achieve high-quality, efficient, and effective results that benefit the organization and contribute to its success. From the above, it is clear that employees contribute directly to increasing organizational productivity, growth, and success. They are considered one of the most important resources through which an organization can maximize its wealth, and through them, the organization can make the best use of its other resources.

Factors Affecting Employee Performance

Among the aspects, affecting employee performance is the lack of clear and specific goals for achieving aligning results. A study by Kird (2015) identified several factors related to the individual, the group and team, the organization, and the work environment:

Factors related to the individual: These include differences in employees' intellectual and skill levels, their psychological state and feelings towards others and the organization, and their organizational loyalty and commitment to recognized instructions and principles.

Group-related factors: The impact of informal groups on an individual's performance and behavior can be positive, such as motivating each other, or negative, such as influencing others to waste time and not achieve their goals because other employees are already performing the tasks.

Organizational Factors

The absence of a fair rewards and incentives system for employees affects their morale and directly influences their productivity. Other factors include the lack of opportunities for employees to improve their skills through training courses and workshops, and the failure to involve employees in decision-making processes.

Factors related to the work environment: the lack of appropriate technology or the availability of technology that exceeds the capabilities and skills of the workers, the lack of appropriate lighting, poor ventilation of the place, and the design of the workplace may be uncomfortable for the workers.

Employee Performance Dimensions The study relied on employee empowerment, training, job satisfaction, and employee performance quality as dimensions of employee performance.

Empowering Workers

In the beginning, the meaning and concept of empowering workers based on verses from the Holy Qur'an: "And thus We established Joseph in the land to settle therein wherever he willed. We bestow Our mercy upon whom We will, and We do not waste the reward of the achievers of good. (56)" meaning that God Almighty empowered our master Joseph in the land of Egypt and made him a ruler and close to the Aziz of Egypt. Due to his experience, good management, and success, he was entrusted with authority (Al-Abbasi and Al-Rifai, 2023). Empowerment here means granting authority, whether by placing individuals in positions of power or by delegating responsibilities and authority to them (Omar, 2008). The term "empowerment" refers to collaboration with others and the effort required accessing and utilizing resources to achieve the organization's goals and objectives.Among the obstacles that affect employee performance are excessive centralization of management, the concentration of power solely in the hands of senior management, and the fear among senior management and officials of losing their positions due to the emergence of competent employees capable of making decisions and improving the organization. Additionally, employees themselves fear taking responsibility and are not encouraged to demonstrate their inner strength (Al-Qubailat, 2023).

Employee Training

The importance of employee training lies in its focus on increasing employee productivity and performance by making the organization's goals easily and clearly understood by employees and developing their skills to achieve them efficiently and effectively. It also contributes to developing leadership styles within the organization and increasing communication and participation from employees to management, leading to more appropriate and positive organizational decisions (Al-Shara'a & Al-Tarawneh, 2008).

Employee Satisfaction

Performance is closely linked to job satisfaction and can be defined as the degree of internal feeling of employees that their requirements and needs are satisfied, which they aspire to obtain from the organization in return for their performance of the activities and tasks they perform. It is a combination of functional and psychological factors that make the employee satisfied with his work (Al-Mahamid and Al-Jabali, 2018). The importance of employee satisfaction lies in its contribution to increased productivity. It fosters employee commitment, loyalty, and engagement within their organizations. The higher the satisfaction rate, the lower the employee turnover rate and the lower the organization's costs of recruiting new staff (Karim, 2017). It's worth noting that incentives vary depending on each employee's needs; they may include promotions, bonuses, performance-based recognition such as "Employee of the Month," or even granting additional authority within the team. Employee satisfaction can also be a form of incentive.

Employee Performance Quality

Quality is defined as the conformity of results to what was planned, and employee performance quality refers to the extent to which employee performance matches what is expected and anticipated of them to achieve and accomplish. Quality is also another reason for reducing costs, whether financial, material, or even time-related. When operations and activities are performed flawlessly the first time, the intended purpose is fulfilled, and employees are not required to repeat the assigned task. Furthermore, organizations constantly strive to improve performance quality and prioritize it to ensure their success and sustainability (Toutaou and Bouklamoun, 2022). The importance of employee performance quality lies in employees' adherence to and compliance with the specifications and standards set for them to achieve efficient outputs.

The Relationship between Business Intelligence and Employee Performance. Business intelligence contributes to its users obtaining and extracting accurate information and data that helps in analyzing performance evaluations in a timely manner. It also helps decision-makers within the organization to obtain information about performance gaps among employees. Business intelligence is considered one of the most important modern and technologically advanced information systems and technologies, which works to enhance and improve organizational performance and achieve its goals by improving human resource management. Given the importance of human resources in organizations, they strive to focus on and improving their performance, and this can only be achieved by relying on effective systems and technologies that keep pace with the changes and developments in the age of technological advancement (Ghawati and Saoud, 2020).

Several studies link business intelligence to employee performance. We will review some of their findings: a study by Hassan and Kadhim (2022) entitled "The Role of Business Intelligence in Achieving Sustainable Development," an applied study in the Ministry of Science and Technology in Baghdad, Iraq. One of the most important recommendations of this study is to introduce business intelligence practices and enhance its programs in the Ministry of Information Technology, and to utilize technology programs to reduce risks and enhance performance.

(Al-Batayneh et al., 2021) conducted a study titled: “The Impact of Business Intelligence on Supply Chain Performance at Al-Yawm Dairy Company” in Jordan. The study's most prominent recommendation was for the company to continue enhancing its use of business intelligence systems to improve its supply chain performance. A study by (Kakhki and Palvia, 2016) entitled: “Effect of Business Intelligence and Analytics on Business Performance,” conducted in America, also found a positive impact of the extent of application of business intelligence systems.

Al-Adhami's (2023) study aimed to measure the impact of business intelligence systems on employee performance in Jordanian telecommunications companies. The study found a number of positive results across all dimensions of business intelligence systems, including reporting, data collection, data warehousing, data mining, and information sharing. The study recommended focusing on the storage of extracted data and information. Moumni's (2023) study aimed to determine the impact of strategic intelligence on employee performance in Jordanian telecommunications companies. This was achieved through examining the dimensions of strategic intelligence (foresight, systematic thinking, and partnership) and their effect on employee performance. The study recommended the adoption of strategic intelligence and the deepening of its understanding within organizational management, given its significant importance in addressing changes and developments in the surrounding environment. This understanding helps organizations make sound decisions. The study also emphasized the need to focus on employee training and to foster the adoption of new and innovative ideas that align with current and future needs. Hijazi's (2022) study aimed to identify the impact of business intelligence (BI) systems on adaptive performance in Jordanian pharmaceutical companies. It concluded with several recommendations, most notably: leveraging BI systems to streamline work processes, focusing on increasing operational efficiency and supporting innovation, and emphasizing the necessity of implementing BI systems in organizations due to their significant importance and crucial role in facilitating decision-making and adaptation. Shamardal's (2025) study examined the impact of BI on employee performance effectiveness at the Saudi National Water Company, highlighting the mediating role of IT capabilities. Among its recommendations was the Saudi National Water Company's commitment to utilizing real-time analytics to understand trends and changes in consumer behavior, thereby aiding in decision-making.Study by Al-Wafa (2025) aimed to identify the impact of business intelligence (BI) in its various dimensions (data warehousing, data mining, real-time analytical processing, and information review techniques) on crisis management (early warning detection, preparedness and prevention, damage containment, recovery, and learning) in Jordanian insurance companies, with organizational innovation acting as a mediating variable. The study recommended that Jordanian insurance companies continue to prioritize organizational innovation due to its significant impact on enhancing the effectiveness of business intelligence in crisis management. It also recommended conducting ongoing workshops and training courses to train employees on business intelligence systems and organizational innovation, thereby strengthening their ability to adapt to crises. Qashta's (2020) study aimed to identify the impact of business intelligence on human capital development in Palestinian universities in the Gaza Strip. The mediating variable was scientific and technological advancement. The study recommended that university administrations increase their focus on human capital development by learning from the experiences of institutions in developed countries and by engaging with human resources experts to deepen awareness among university administrations and staff regarding the importance of human capital and its contribution to success and sustainability. It also recommended providing incentives for outstanding human resources to stimulate them to utilize their full potential in their assigned tasks and to develop human capital. Sadaqa's study (2020) aimed to determine the impact of business intelligence on decision quality through data quality in Jordanian telecommunications companies. The business intelligence practices examined included data integration, transparent business intelligence interaction, and support for analytical and intelligent decision-making. The researcher recommended that telecommunications company managers continue to provide distinctive designs to achieve the highest level of quality in information delivery, adhere to the principle of transparency in dealing with decision-makers, implement business intelligence for all companies in society, and pay attention to data quality, as the quality of decisions depends on the quality of data.

What are the benefits of investing in business intelligence for companies?

Business intelligence (BI) systems provide organizations with rapid access information, a comprehensive understanding of their data, and the ability to transform this data into actionable and consistently relevant insights. They also enable performance monitoring, data analysis, and improved decision-making processes, as well as problem detection and resolution. Furthermore, they facilitate the identification of market trends and patterns, cost reduction, productivity enhancement, accelerated growth, increased profits, and higher revenue streams. Ultimately, they help businesses understand customer behavior and gain a healthy competitive advantage over their competitors (Business Intelligent, 2023).

What is the Future of Business Intelligence?

Business intelligence is likely to continue its rapid growth in the future. With the rapid development of artificial intelligence, the massive growth of data, and the increasing use of automation, business intelligence will require the development of new skills and capabilities to effectively manage and leverage the data it generates. This will empower organizations and decision-makers to unlock new opportunities that will help them compete and succeed in a constantly evolving market (Business Intelligent, 2023)

CONCLUSIONS

Based on a review of the literature and analysis, this study proposes the following conclusions:

Jordanian organizations should enhance the role of business intelligence and keep pace with technological developments by implementing new technological methodologies, including the use of artificial intelligence and machine learning technologies, and integrating them into their procedures. Focusing on targeted training programs and workshops that improve employees' accepting of the methods they should follow to grasp how to use modern technology and benefit from it in order to improve their performance. This contributes to a constructive impact on the overall performance of the units, helping to provide employees with opportunities to develop their skills and continuously advance their performance.

Jordanian organizations should empower their employees by delegating responsibilities directly related to their jobs and activities this increase employee loyalty and improves the work environment. Furthermore, it encourages innovation and creative thinking by giving employees the freedom to share and make decisions proper to the situation.

Jordanian organizations should provide all suitable material and decent incentives that contribute to increased employee satisfaction and offer opportunities for professional development. This will reinforce employees' essential motivation to achieve organizational goals.

Paying attention to employing business intelligence organizations activities to provide insights for employee performance by tracking data that allow identifying and analyzing employee performance areas. Through this, they can identify areas that need improvement individually or collectively, according to the requirements of the activities, which increases the chances of enhancing their efficiency and the quality of their performance.

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