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Utilizing business intelligence and digital transformation and leadership to enhance employee job satisfaction and business added value in greater Amman municipality

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A B S T R A C T

The goal of this study was to find out how business intelligence systems, AI, and digital leadership affect how satisfied employees are with their jobs and how much value they add to companies in the Greater Amman Municipality. After the study samples were taken and looked at, a total of 246 samples were approved to be used in the PLS software-based analysis. The results of this study showed that putting in place business intelligence tools, artificial intelligence, and digital leadership all made employees happier with their jobs and gave businesses more value. The research showed that there are four key parts to digital leadership: commander, communicator, collaborator, and co-creator. The main parts of business intelligence are Data Warehouse, Data Mining, Business Process Management, and Competitive Intelligence. Findings show that digital transformation is made up of three key parts: changing processes, developing business models, and changing domains. The results also show that an employee's level of job satisfaction, which includes things like business success, work commitment, and job thinking, is linked to how much value they add to the company. Intriguingly, the current results go against those of earlier studies, which said that the variables of interest have no effect on how happy employees are with their jobs or how much value companies add for their customers. When the results of this study are looked at as a whole, they say that businesses should start doing things that make employees happier at work and increase the value of the business. The current study is innovative because it focuses on the most important parts of business intelligence, artificial intelligence, and digital leadership in order to improve employee satisfaction at work and the quality of business learning with added value in Greater Amman Municipality.

1. Introduction

Recent trends in business performance enhancement founded on the application of information technology systems (Holmström, 2022). Manita et al. (2022) suggest that the far-reaching impacts of digital technology on society and industry can be categorized as business performance. Improving overall performance through adding values for end products and services and increasing employee job satisfaction are challenges most firms are meeting today, and many of those companies are looking to digital technology for finding, and transforming new solutions (Vaska et al., 2021). It is necessary to conduct new research

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to define the capabilities and characteristics of business intelligence, artificial intelligence, and digital leadership on business performance, as well as their capacity to assist employees in improving their work performance and achieving activities and goals (Judeh et al., 2022a). This is necessary to generate new products and services that have a greater potential for adding value (Basile et al., 2023). The process of change, improvement, and development that occurs in the characteristics of a product as a result of the application of systems, tools, and technological methods of communication that lead to the discovery of new ideas and products, the development of novel solutions, the management of operations through technological means, and the overall improvement of business performance through the addition of valuable and new values is what is meant by the concept of business added-value (Kulinich et al., 2022).

Our inductive framework is based on an extensive literature analysis, and it demonstrates how improvements in business intelligence, artificial intelligence, and digital leadership have contributed to improvements in employee job performance and in the added values that businesses receive. The purpose of this study is to assist businesses in evaluating the influence that BI, AI, and DL have on improving employee work performance and business added values. The study investigates the effects of adopting business intelligence, digital transformation, and digital leadership concepts and measures whether or not it could have an effect on enhancing employee job performance and business added value (Buck et al., 2023). Every business can evaluate its added value using a variety of metrics, including the percentage of satisfied customers, the rate at which new customers are acquired, and the number of repeat transactions. Following the discussion on how to perform a review, we will investigate the findings of previous studies and offer some suggestions for the direction of future research.

The remaining portion of this investigation is composed of four separate sections, the first of which is the introduction to each section. In Section 2, we will talk about the research that came before. In the third segment, we go over the steps involved in conducting research and collecting data. In Section 4, the findings are discussed, and then in Section 5, the overall findings and interpretations of the research are presented.

2. Literature Reviews

2.1 Business Intelligence

Businesses faced challenges related to the quantity, quality, precision, and validity of the data when attempting to acquire and manage massive quantities of data (Wang et al., 2018). The result is that business intelligence as a method has matured into a modern, cutting-edge approach to gaining a lead in the marketplace through the identification of previously untapped value (Carbajal et al., 2023; Judeh et al., 2022b). The ability of a company to store, organize, analyze, and combine the various types of data it collects to obtain insights and create new products is greatly enhanced by business intelligence (BI) (Ahmad et al., 2023). Organizations have been compelled to use analytical business intelligence tools due to the difficulty of work without extensive use of technological systems, their ability to deal with and analyze big data and attempt to extract new values, and the complexity of the process required to achieve business performance (Ahmad & Mustafa, 2022; Younus, 2022). This is because modern businesses require a wide array of technical infrastructure to function (Mbima & Tetteh et al., 2023). Businesses can gain new insights, streamline their decision-making processes, address previously intractable issues, and eventually offer improved services and goods to customers by storing data in data warehouses, classifying it, verifying its accuracy, and searching for new data relationships (Schmitt et al., 2023; Bygstad et al., 2022).

2.2 Digital Transformation

Artificial intelligence is often compared to the study of human intellect by computer scientists (Holmström, 2022). Computer scientists frequently make comparisons between artificial intelligence and the area of computational methods used to aid businesses in running their operations (Manita et al., 2020). Research shows that involving the target audience in the product's conception and design phase yields excellent results (Vaska et al., 2021). Because of its potent medium for bridging the distance between customers and businesses, digital technology is a crucial part of the creative and innovative process (Lara & Florez, 2022). To most academics, the incorporation of technological tools and systems into administrative, operational, and industrial contexts was a must for the growth of their respective fields (Avgerou & Walsham, 2017). To do this, we formulated long-term strategies that can be used as a springboard for developing detailed plans for future product iterations (Hai et al., 2021). A plan of action was developed as part of the procedure (Ulas, 2019). Artificial intelligence is one example of a technological instrument that can help managers and decision-makers make sense of the vast amounts of information available in online repositories and databases (Frank et al., 2019). It allows companies to adopt and implement new operational models, which can enhance their current situations in a variety of ways (Leone et al., 2021). These include the development of novel products with the potential to increase customer loyalty, the fortification of the company's capacity for transformation and development, and the gain of market share and advantages over competitors (Ahmad et al., 2021).

2.3 Digital Leadership

Leadership in the digital age necessitates guiding followers to make the most of the company's online tools for the benefit of all (Tigre et al., 2023). Many businesses are experiencing significant changes in their organizational structures and the roles

that employees perform because of the rapid development of digital technology in recent years (Olson et al., 2005). Numerous aspects of the company will need to undergo change to accommodate the new circumstances. These include the types of jobs accessible, the company culture, and the technology used in the workplace (Abidin et al., 2023; Dwivedi et al., 2020). Transformational efforts drive shifts to better meet immediate needs while also laying the groundwork for an uncertain future (Shin et al., 2023). To effectively mitigate these problems and aid in the transformation, digital leaders need a unique collection of skills (El Akid et al., 2023). Leaders exert considerable sway because they shape their organizations to face an increasingly unclear and unstable future (Petry, 2018). For instance, it is difficult for digital leaders to inspire their teams to work with the new set of technologies that may or may not be adopted in the future because of the inherent uncertainty of the future of digital technology (Sheninger, 2019). This is a common issue for digital leaders, and it's exacerbated by the fact that many leaders lack the skills required to be effective digital leaders (Shin et al., 2023). Good news is they seem determined to finally acquire these skills (Ahmad et al., 2022). Organizations struggled in the digital economy because they lacked the tools that would allow them to reach customers, provide distinctive and innovative products ahead of competitors at competitive prices, and maintain a stable position in relation to competitors (Hanandeh & Mustafa, 2022; Hammouri & Abu-Shanab, 2017). As a result of the rising costs of commercial, operational, and transportation expenses, the increasing reliance on technological systems for the management of large amounts of data (Gretzel et al., 2015), and the rising expectations of customers, the majority of today's businesses are investing in technological advancements to remain competitive (Tigre et al., 2023).

2.4 Employee Job Performance and Business Added Values

Workplace effectiveness has been the subject of countless studies in the fields of industrial management and corporate behavior (Chen et al., 2023). It can be defined as an individual's observable action or behavior that creates value for the company and helps it achieve its goals (Ghorbanzadeh et al., 2023; Hammouri et al., 2022). When we talk about an employee's performance on the job, we're referring to the extent to which they meet the broad performance expectations of the company (Mishra & Kasim, 2023). Over the past few decades, there has been a profound shift in how we think about "job performance," from a narrow focus on fixed positions and duties to a broader grasp of roles within dynamic organizational contexts (Anasori et al., 2023). Because of the increasingly competitive and worldwide nature of the modern workplace, it has become increasingly important for businesses to be flexible enough to adapt to new situations quickly (Alkharabsheh et al., 2023). A broader conception of what constitutes "good work" in the modern workplace is required, one that includes any and all efforts that add to the success of the business (Al-Zagheer et al., 2022). Role performance, adaptive performance, proactive performance, and citizenship actions are represented in the definition of individual performance (Al-Zagheer et al., 2022).

According to this revised framework for measuring employee productivity, role performance can make a difference at three distinct tiers: the individual, the team, and the company. Competence, flexibility, and initiative are the three main types of behavior that can be broken down into sub dimensions of job position performance (Hanandeh et al., 2023). The figure below refers to the theoretical framework of this research, which represents the aim of study.

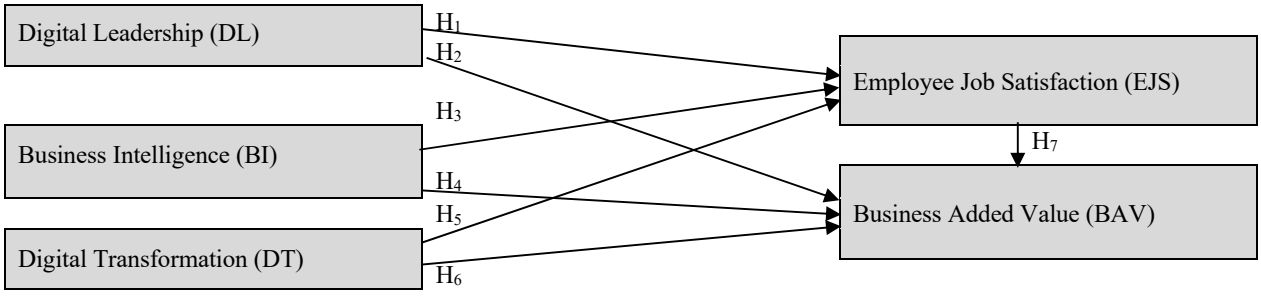

Fig. 1. Model concept

3. Research Methodology

The primary objective of this research is to understand how business intelligence, AI, and digital leadership enhance employees job satisfaction. A quantitative cross-sectional design was utilized to test the research model. The population of this study was employees who are working in Greater Amman Municipality. Quantity's five-point Likert scale (1=strongly disagree; 2=disagree; 3=neutral; 4=agree; and 5=strongly agree) was used to evaluate the study's key formulations on Google Drive. PLS explored study hypotheses. 246 respondent responses were approved for analysis and discussion of the study's hypothesis after data cleaning. Finally, data outweighed predictors 10-to-1.

4. Research Results

The measurement model underwent tests to evaluate its validity and reliability. Regarding reliability, one method used to assess both reliability and internal consistency is Cronbach's alpha. Hair et al. (2006) emphasized that Cronbach's alpha should exceed

the threshold of 0.70. In Table 1, the results showed a high level of internal consistency for the scale, as Cronbach's alpha values for each construct surpassed the recommended threshold (0.70).

To measure convergent validity, the composite reliability (CR) and average variance extracted (AVE) tests were utilized. Fronell and Larcker suggested that CR and AVE should meet the recommended values, which are greater than 0.70 and 0.50, respectively. The findings in Table 1 indicated that the values of CR and AVE for all constructs exceeded the threshold values. Additionally, the analysis revealed that all indicators for each factor were significant, with standardization path loadings surpassing the acceptable value of 0.50.

Table 1
The results of the reliability and validity test

Code	Variable	Factor's Loading	VIF
Digital Leadership (DL)	(Cronbach's Alpha: 0.724, CR: 0.743, AVE: 0.615)		
DL1	Commander	0.556	1.369
DL2	Communicator	0.691	1.372
DL3	Collaborator	0.681	1.247
DL4	Co-creator	0.570	1.568
Business Intelligence (BI)	(Cronbach's Alpha: 0.584, CR: 0.651, AVE: 0.632)		
BI1	Data Warehouse	0.513	1.821
BI2	Data Mining	0.610	1.484
BI3	Business Process Management	0.686	1.254
BI4	Competitive Intelligence	0.528	1.378
Digital Transformation (DT)	(Cronbach's Alpha: 0.795, CR: 0.713, AVE: 0.679)		
DT1	Process Transformation	0.621	1.543
DT2	Business Model Change	0.589	1.345
DT3	Domain Transformation	0.631	1.596
Employee Job Satisfaction (EJS)	(Cronbach's Alpha: 0.750, CR: 0.769, AVE: 0.759)		
EJS1	Supervision	0.575	1.432
EJS2	Social relations in workplace	0.723	1.542
EJS3	Communication	0.654	1.865
Business Added Value (BAV)	(Cronbach's Alpha: 0.790, CR: 0.769, AVE: 0.759)		
BAV1	Income and Profit	0.686	1.821
BAV2	Submit high-quality work	0.610	1.254
BAV3	Make a unique product	0.513	1.378
BAV4	Encourage faster production	0.528	1.484

Furthermore, the evaluation of discriminant validity was conducted using the Fronell-Larcker criterion. This criterion examines whether the square root value of the average variance extracted (AVE) for each construct exceeds the inter-factor correlations between constructs. Table 2 presents the results, indicating that the square root values of all AVEs (shown as diagonal bold values) were higher than the correlations between the constructs. This outcome confirms the presence of discriminant validity.

Table 2
Discriminant Validity

Construct	DL	BI	DT	EJS	BAV
DL	0.6511				
BI	0.1327	0.6219			
DT	0.3978	0.1948	0.7161		
EJS	0.3292	0.3070	0.2094	0.6209	
BAV	0.1508	0.1294	0.2308	0.1061	0.5914

After assessing the validity of the measurement model, the structural model was examined. The results indicated that the R-squared value (R^2) was 55.4%. Furthermore, the R^2 value exceeded the acceptable threshold of 25% as stated by Hair et al. (2016). The research findings supported all the proposed hypotheses, as evidenced by the statistically significant p-values presented in Table 3. The results revealed that the digital leadership (DL) had a direct and significant influence on the employees' job satisfaction ($\beta = 0.215$, $p < 0.05$) and business added value ($\beta = 0.419$, $p < 0.05$), supporting H1 and H2. Additionally, the findings demonstrated that business intelligence (BI) significantly predicted both employees' job satisfaction ($\beta = 0.314$, $p < 0.05$) and job added value ($\beta = 0.197$, $p < 0.05$), thereby supporting H3 and H4, respectively.

Moreover, digital transformation (DT) was found to be statistically significant in explaining employees' satisfaction towards their jobs ($\beta = 0.297$, $p < 0.05$), and influencing positively on business added value ($\beta = 0.319$, $p < 0.05$), such findings confirming H5 and H6 respectively. Finally, the study showed that employees' job satisfaction (EJS) had a positive and significant impact on business added value ($\beta = 0.307$, $p < 0.05$), thus confirming H7.

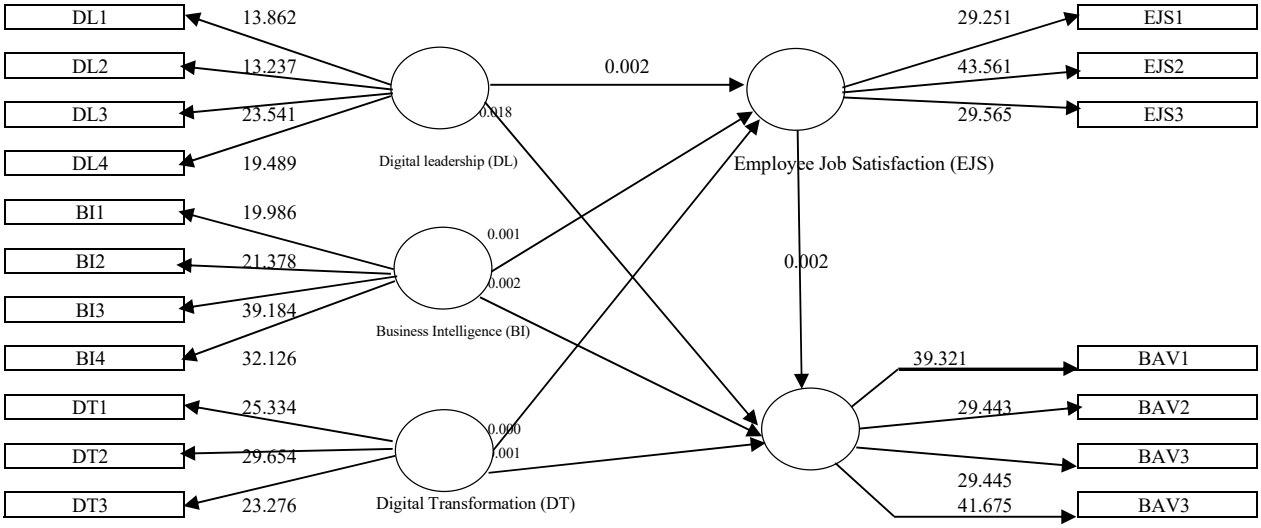

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Table 3
Research Hypotheses Test

Research Hypotheses Test				Beta	P-Value	Results
H1	Digital Leadership (DL)	→	Employee Job Satisfaction (EJS)	0.215	0.002	Supported
H2	Digital Leadership (DL)	→	Business Added Value (BAV)	0.419	0.018	Supported
H3	Business Intelligence (BI)	→	Employee Job Satisfaction (EJS)	0.314	0.001	Supported
H4	Business Intelligence (BI)	→	Business Added Value (BAV)	0.197	0.002	Supported
H5	Digital Transformation (DT)	→	Employee Job Satisfaction (EJS)	0.297	0.000	Supported
H6	Digital Transformation (DT)	→	Business Added Value (BAV)	0.319	0.001	Supported
H7	Employee Job Satisfaction (EJS)	→	Business Added Value (BAV)	0.307	0.002	Supported

5. Research Conclusion and Implication

The aim of this study was to utilize business intelligence and digital transformation and leadership to enhance employee job satisfaction and business added value in Greater Amman Municipality. The study also aims to give full information about the capabilities of applying new concepts such as business intelligence, digital transformation, and digital leadership concepts and their effects on job satisfaction and business added value. The findings reveal that business intelligence, digital transformation, and digital leadership have significant impacts on employee job satisfaction (H1, H3, and H5) and business added value (H2, H4, and H6).

The study showed the importance of changing the role of managers from playing the role of traditional managers to becoming leaders of organizations by adding the behavioral theory of direct interaction and providing employees with the information required to complete the work to the classic theory of directing, controlling, and decision-making. The research focused on the importance of digital leadership, represented by increasing the percentage of flexibility, transferring valuable information to employees, and supporting the application of entrepreneurial and creative ideas for employees, which are capable of adding new values to products and creating a creative environment capable of increasing employee satisfaction (Holmström, 2022).

Research provides more information about business intelligence systems and their ability to assist managers and employees in improving their ability to perform business. Research statistical analysis proved that apply business intelligence can enhance employees' capabilities in giving new values for end products able to compete in a competitive environment (Costa Melo et al., 2023).During the companies' confrontation with the Corona pandemic and the transformation of most businesses to perform their business through the application of information technology systems, companies noticed the ability of employees to perform business while significantly reducing transaction costs, and the study has proven that applying the concept of digital transformation can reduce the proportion of direct interaction between employees and customers and reduce time Lost to complete the business and thus increase the time used by employees to increase their productivity (Abidin et al., 2023).

The results show that DL, BI, and DT all have good effects on how happy employees are with their jobs and how much value they add to the business. This finding is similar to what other studies have found (Holmström, 2022; Costa Melo et al., 2023; Basile et al., 2023; Abidin et al., 2023; Ghorbanzadeh et al., 2023). This study also shows how digital leadership helps employees do their jobs better and adds value to the business. It does this by changing the roles of managers in ways that

improve their leadership skills, communication and cooperation with employees, cooperation with partners and customers, and creative decision-making. This finding is the same as what other studies have found. This study also shows how business intelligence helps employees do their jobs better and adds value to the business. This is done by managing data in the data warehouse efficiently and effectively to reduce data conflicts, using analytical tools on the web to improve the performance of organizations, and trying to translate knowledge capabilities into new products and services with competitive advantages. This finding is the same as what other studies have found. Lastly, the research study shows how digital transformation improves employee job performance and business added value by relying on digital transformation, using new business models, and totally changing the scope of work to become fully dependent on technological development.

6. Future Research

While the current study focuses on the Greater Amman Municipality, future research could examine the impact of BI and digital transformation on employee job satisfaction and business added value in different organizational settings. Investigating how these concepts operate in various industries and sectors could provide a broader understanding of their applicability and effectiveness. Moreover, conducting longitudinal studies would be valuable to examine the long-term effects of BI and digital transformation initiatives on employee job satisfaction and business added value. By tracking these variables over an extended period, researchers can assess the sustainability and durability of the observed effects, as well as identify any potential changes or fluctuations. On the other hand, investigating potential mediating and moderating factors could enhance our understanding of the mechanisms through which BI and digital transformation influence employee job satisfaction and business added value. For example, exploring the role of organizational culture, leadership styles, or employee engagement as mediators or moderators could provide deeper insights into the complex relationships between these variables.

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