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The role of technological readiness in adopting AI for talent acquisition: Evaluating economic and operational performance

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Abstract

This study investigates the absence of the application of Artificial Intelligence (AI) in Jordanian recruitment practices. In addition, current trends on "Talent Acquisition" and "Artificial Intelligence" in the Scopus database represent a shortage of research from Jordan, which demonstrates the difference in the utilization of AI in local Small and Medium Enterprises (SMEs) compared to international ones. Hence, this study addresses this gap by evaluating the AI acceptance of Jordanian SMEs in recruitment, emphasizing the technology's relative advantage, complexity, compatibility, cost, and perceived security and privacy. Furthermore, the study intends to determine how the adoption of AI has influenced the financial and operational aspects of the companies. A cross-sectional survey of managers from SMEs in Jordan was designed and implemented through an online survey to collect data. Ultimately, the data was analyzed using Structural Equation Modeling (SEM), where technology readiness was supported as necessary for implementing AI for talent management and its benefits for organizational sustainability.

Keywords: Adopting AI, Talent acquisition, Economic performance, Operational performance, Technological readiness.

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1. Introduction

Information Technology (IT), in the modern age, has been identified as a key factor that helps improve business performance. For many years, the concept of AI and its interests and activities have been raised in literature as well as practice [1, 2]. Over time, there has been rapid advancement of technologies that facilitate the development of AI, due to which AI is now gaining traction and being embedded in organizational activity and daily life [3-5]. Similarly, interest has grown in AI and its various applications with the ongoing development of AI technologies [6, 7].

The emergence of AI has encouraged software and system engineers to come up with new strategies for revenue augmentation, cost reduction, and improvement of the effectiveness of the organization [8, 9]. Today, AI is recognized as a significant competitive trend in the industry [10, 11]. AI can be described as a set of tools and technologies whose purpose is to enhance and elevate the efficiency of an organization [12, 13]. With the term 'intelligence' representing the ability to replicate human cognition, AI generates systems designed to address intricate environmental problems. This type of intelligence is important for making decisions, in particular, strategic ones, which businesses have also been using to gain a competitive edge [14, 15]. AI is expected to bring augmentations, among other benefits, which will be controlled in the discussions of economic growth [16, 17]. Therefore, AI is not similar to technologies usually employed within organizational contexts [18] and makes demands of new things from both academics and practitioners [19, 20].

Such IT-based recruiting has appreciably enhanced organizations' activities as far as attracting, sourcing, and hiring people with requisite skills to fulfill their HR needs and also achieve their strategic goals [21, 22]. The physical view of HR recruitment has also been changing with improvements in computerization. E-recruitment has proved better than other methods owing to the faster processing speed that computers allow [23, 24]. Talent management and AI have entered into the emergence of a particular research direction [25, 26].

Recently, a 220 million dollar investment flooded an AI-based talent management solutions firm that aims at acquiring, building, and managing talent, and its worth is currently 2.2 billion dollars [27]. The majority of the organizations thus have devoted considerable resources to the inclusion of AI technology in their operational procedures [28]. Also, corporation IBM succeeded in using HR AI, saving them over $100 million a year in operational costs [29]. The stress on the purpose of theorization of the management of initiatives involving AI in organizations helps the research in this direction [28].

The recent industrial revolution has increased the pressure on SMEs to adopt digital technologies [30]. Furthermore, due to the pressures from stakeholders, SMEs in the recent past have started participating in all sorts of activities for innovating [31]. In Jordan, about 95% of the registered firms are SMEs, producing over fifty percent of the GDP and employing almost sixty percent of the workforce [31, 32]. These statistics underscore the vital importance of SMEs to the Jordanian economy and their indispensable role in any strategy for economic development.

Despite experiencing the slowest real GDP growth among Arab states due to various economic challenges [2, 33, 34]. Jordan ranks commendably at 39th globally and 6th among 11 Arab nations in future technologies (see Figure 1). The Al-Shanableh [34] highlights the importance of these technologies in enhancing Jordan's economic performance. This emphasizes Jordan's robust commitment to adopting cutting-edge technologies and its increasing reliance on information technology across multiple sectors.

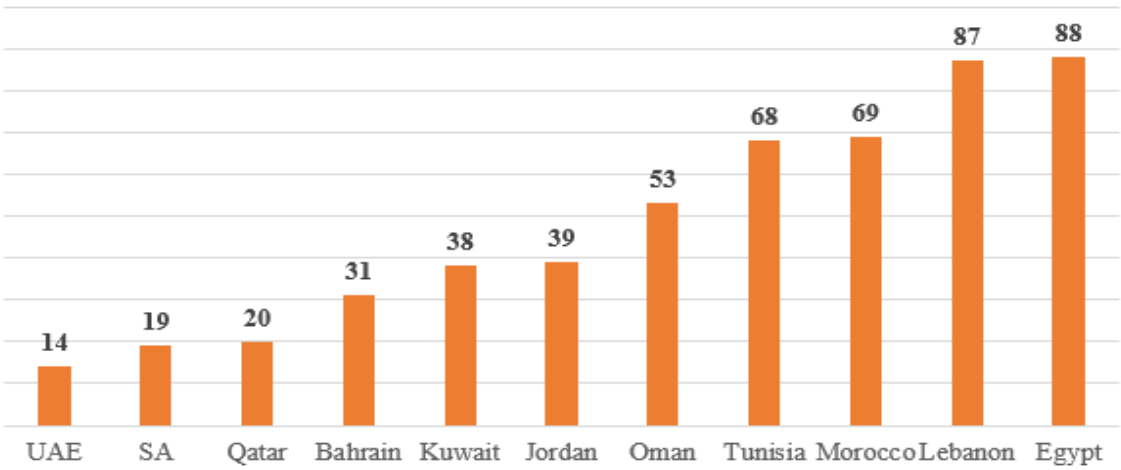

Figure 1.
Future Technologies: Jordan vs. Arab countries.
Source: Dutta and Lanvin [35]

1.1. Research Gap

The data from the Scopus database (See Figure 2) indicates a growing trend in publications on "Talent Acquisition" and "Artificial Intelligence" from 2018 to 2024. Interest began in 2018 with just one article, gradually increasing to two in 2019 and five by 2020, reflecting AI's potential to transform recruitment processes. After a data gap in 2021, likely due to COVID-19 disruptions, publications stabilized at five in 2022, increased slightly in 2023, and then surged to 11 in 2024. This substantial rise suggests the field's maturity, with potential breakthroughs and broader applications, highlighting AI's evolving role in enhancing talent acquisition strategies and aligning with the needs of a digital-first workforce. However, the absence

of publications from Jordan in the field of "Talent Acquisition" and "Artificial Intelligence," as detailed in the Scopus database (See Figure 3), highlights a significant gap in the country's engagement with this interdisciplinary research area.

Consequently, there are several goals in this study. First, it attempts to evaluate the level of technological readiness of Jordanian SMEs in terms of utilizing AI in their recruitment processes. Secondly, the study seeks to evaluate how the implementation of AI has impacted the economic and operational sustainability of such enterprises. More precisely, it examines how AI enhances operational efficiency and the financial success of company operations. While these dynamics are explored, the aim is to provide an understanding of the extent of readiness of Jordanian organizations to use AI-based recruitment and the extent of such proactive recruitment benefits to immediate operational and economic outcomes.

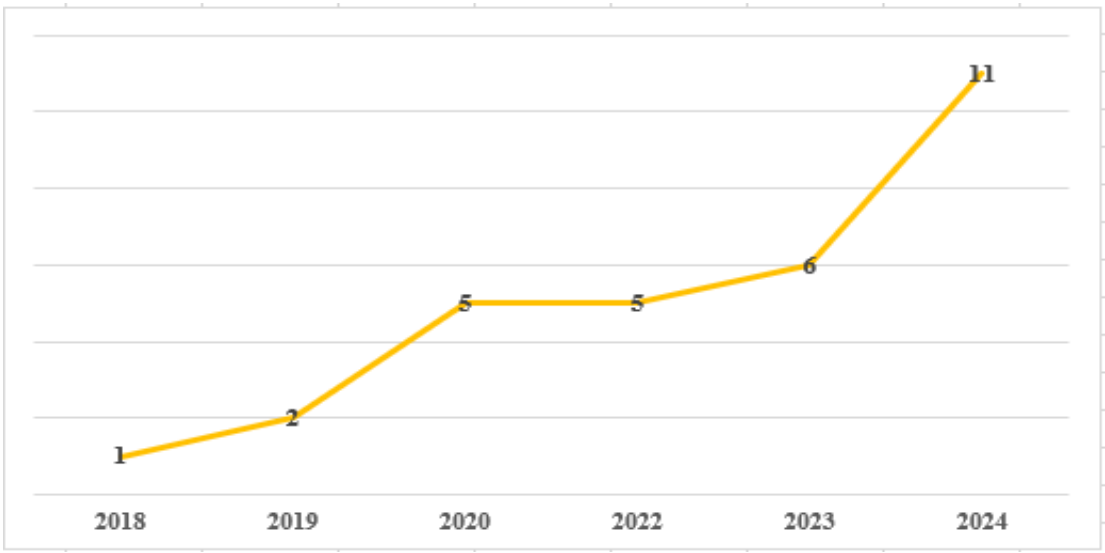

Figure 2.
Number of articles published per year in the Scopus database since 2018.

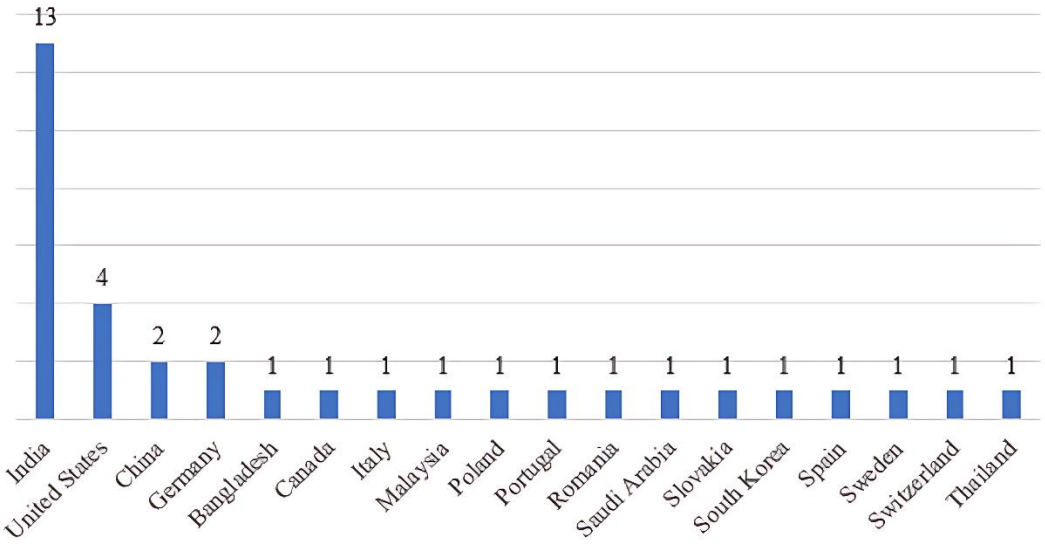

Figure 3.
Number of articles published per country in the Scopus database since 2018.

2. Research Framework and Hypotheses Development

The Stimulus-Organism-Response (SOR) Model is a fundamental approach to the study of human behavior [36]. This model has been used by several researchers to understand the causal relationships among three variables in the concept of their studies. In this regard, Kim, et al. [37] point out that this model widely showcases how the perception of consumers, as well as their behavioral intentions, can be measured. More studies indicate that such a model is also flexible in terms of its manifold structure that permits the addition and analysis of other variables [38].

Thus, the S-O-R framework is considered a complex and flexible theoretical framework, which is necessary for the research of the triad of S-O-R in human behavior investigations [33, 39]. In addition to that, its widespread use and flexibility justify its relevance in many fields of scientific research [40]. The relative advantage, complexity, compatibility, cost-effectiveness, and perceived security and privacy inform how AI is being adopted for recruitment services. The fundamental notion within the framework of the SOR model is the 'AI Adoption for Talent Acquisition' (See Figure 4). The model

separates the responses into two broad categories: economic performance and operational performance. By employing the SOR model, the research posits that the organization's adoption of AI (the organism) processes these environmental inputs (stimuli) and results in specific outcomes (responses).

2.1. Relative Advantage

Relative advantage is defined as the extent to which individuals believe an innovation is superior to existing traditional options [41]. When this perceived benefit exceeds that of current methods, the innovation is quickly adopted. It has been consistently reported in the literature that the adoption of AI technologies is positively influenced by their perceived relative advantages [8, 42-44]. Thus, the subsequent hypothesis is suggested:

H1: The relative advantage of AI technology positively impacts AI adoption for talent acquisition.

2.2. Complexity

Complexity measures the perceived difficulty of understanding and using an innovation [41]. Technological complexity refers to the challenges in learning and mastering new technologies Carayannis and Turner [45] and it is widely accepted that higher complexity negatively affects innovation adoption [46]. Furthermore, research indicates that excessive technological complexity can impair performance efficiency [47]. Research into the diffusion of innovations has consistently shown that the more complicated it is to adopt a new practice, the less likely its adoption is Phuoc [8]. Therefore, the subsequent hypothesis is suggested:

$H_{2:}$ The complexity of AI technology negatively impacts AI adoption for talent acquisition.

2.3. Compatibility

Technical compatibility is one of the factors of quite great significance concerning the adoption of innovations [48]. It deals with the issue of how well an innovation meets the targeted users and how useful and enjoyable it manages to be Shqair and Altarazi [33] and Saatchi [40]. Accordingly, if AI technology matches well with existing IT infrastructures, its deployment tends to be more cost-effective, thus enhancing its likelihood of adoption. Badghish and Soomro [42] and Saatchi [40] found that compatibility positively influences the adoption of AI. Consequently, this leads to the formulation of the following hypothesis:

$H_{3:}$ The compatibility of AI technology with existing systems positively impacts its adoption for talent acquisition.

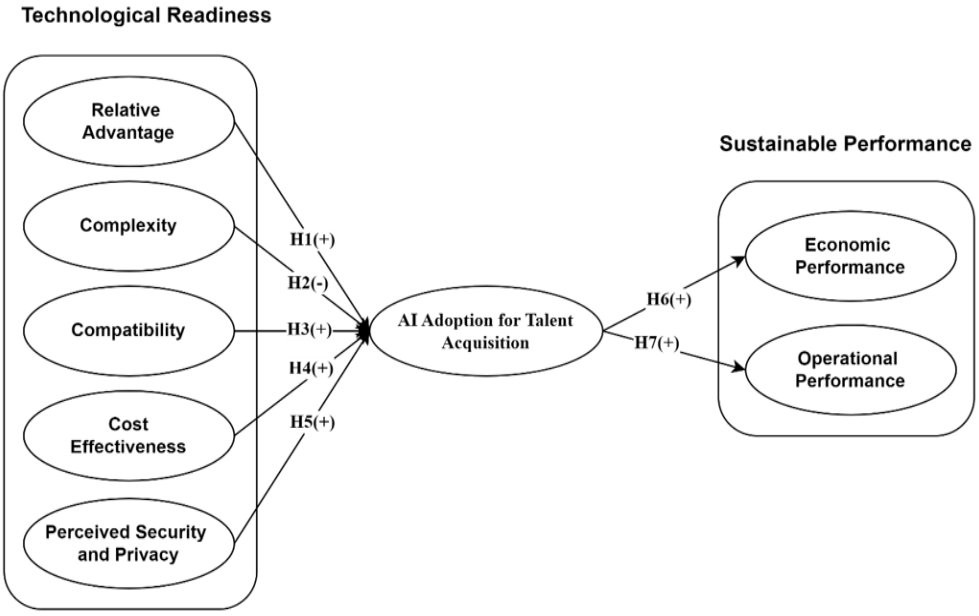

Figure 4.
The research framework.

2.4. Cost Effectiveness

Cost-effectiveness is a metric indicating that the benefits of adopting new technologies should surpass their expenses. Pillai and Sivathanu [49] argue that organizations must invest in AI technologies for talent acquisition to achieve such benefits. Malik, et al. [50] note that organizations use these technologies to reduce costs. AI technology automates repetitive tasks, streamlining the talent acquisition process. Budhwar, et al. [51] further highlight that AI-enabled recruitment and selection play a critical role in identifying the most suitable candidates for organizations, processing large data sets much faster than humans. Consequently, this leads to the formulation of the following hypothesis:

$H^{4:}$ Cost effectiveness of AI technology positively impacts its adoption for talent acquisition.

2.5. Perceived Security and Privacy

Security and privacy measure the effectiveness of technology and information systems in securely executing tasks and transmitting data [2]. In the recruitment process, acquisition data such as resumes and profiles of candidates and documentation on hiring outcomes are managed using AI. Protecting personal data by safeguarding the people's privacy and confidentiality of hiring results is important as well as Pillai and Sivathanu [49]. Okeyika, et al. [52] reported that AI helps to enhance HR managers' satisfaction by bringing insightful information and analytics to make better decisions. In turn, this discussion leads to the following assumptions:

H_5: Perceived security and privacy positively impact the adoption of AI technology for talent acquisition.

2.6. Adoption of AI for Talent Acquisition

Business productivity improvements include cost savings, better forecasts, and enhanced business processes when companies leverage digital technologies [53]. Therefore, more and more corporations embrace AI because it has high capabilities to improve their performance [54]. In the same way, AI enhances the efficiency and speed of procedures in talent acquisition and lowers the cost of hiring by improving the country's recruitment process [55]. Sustainable performance has three dimensions mainly: environmental, economic, and operational [56]. This study considers only two of them: operational and economic performance.

Operational performance is derived from effective product and process development, achievement of quality parameters, and lower lead times [57]. AI has value enhancement implications in many operational domains either through cost benefits generally referred to as liability elimination or contributes to increased operational efficiency. Furthermore, the use of AI increases the productivity of the economy as repetitive tasks among others are automated Acemoglu and Restrepo [58] while also boosting the pace of development of new products Babina, et al. [59] which makes the competition more fierce [60].

The economic dimension of the performance of an organization focuses solely on the quantifiable growth factors [56]. It is observed that organizations that adopt AI have forgone losses in revenue as AI makes it easier to understand how customers behave and their responses. Production of goods became less energy-intensive cost-efficient and speedier due to improved short-term decisions affecting profitability and other financial performance factors [61]. Computer technology will increase productivity by cutting the costs of repetitive activities, process management, and control [58]. It is in the light of these that the following hypotheses are suggested:

H_6: The adoption of AI for talent acquisition positively impacts economic performance.

H_7: The adoption of AI for talent acquisition positively impacts operational performance.

3. Design and Methods

The specific research methodology that would be followed in the research is a quantitative study based on the positivist philosophy [62]. This perspective is appropriate for the present study, which intends to measure objectively the correlation between technological readiness and the use of AI in talent acquisition in Jordanian SMEs and their subsequent economic and operational performance. Furthermore, it utilizes a cross-sectional research design which is defined as a collection of data at one point in time [63]. This cross-sectional, quantitative approach is in line with the study's objective of generalizing findings across Jordanian SMEs to provide actionable insights that practitioners and policymakers can act upon.

The target population in this study is managers of SMEs operating in various industries within Jordan. According to the latest data provided, there are only 140,000 SMEs within the Jordanian borders, which, according to the Economic and Social Commission for West Asia, are enterprises with fewer than 250 employees. These operations span all types of sectors such as manufacturing, services, technology, and retail. Because Jordan's population of SMEs is quite expansive and significantly heterogeneous, the study will employ a 'stratified random sampling' method to ensure that a representative sample of the broader population is obtained [64].

The sample size is another very important factor, taking into consideration the complexity level envisioned for the SEM analytical technique. This study aims to achieve a sample size of about 400 managers employed in SMEs, as it is viewed that to gain adequate power of the analysis, there needs to be a few acceptable in terms of size since the analysis is expected to be able to spot logical relations among the given variables in the study. This sample size is consistent with the recommendations for the application of SEM, which suggests having at least 10-15 respondents for each variable in the model [65]. Given the number of technological readiness variables, AI adoption, and sustainable performance, the sample size of 400 is expected to yield robust and reliable results. The sample size also accounts for non-response and partial response, which are quite common in survey-based studies. In total, 382 questionnaires were collected from the target population. Twenty-nine were excluded for not meeting the initial evaluation criteria, and 353 were subjected to advanced research analyses.

Data collection was done through an online survey, which was distributed via email to the sampled SMEs. The survey is hosted on a secure platform; that is, SurveyMonkey. In addition, reminders were sent to non-respondents to increase the response rate. The data collection process was carried out for 8 weeks starting on 25 Jun 2024. A structured questionnaire was used as the primary data collection instrument. A self-administered questionnaire introduction that describes the research objectives and confirms the researchers' obligation to ethical research was developed and tested on online platform accessibility and data confidentiality. In addition, it consists of three sections. The first section, which pertained to technological readiness, was measured by 22 items derived from the works of Mohammad, et al. [2]; Hmoud, et al. [66], and Trang [67]. Items are shaped in five first-order constructs: relative advantage, complexity, compatibility, cost-effectiveness, and security and privacy. The second part was AI adoption for talent acquisition measured by three items based on Badghish

and Soomro [42]. The third section consisted of four items to assess the sustainable performance of Badghish and Soomro [42] i.e., economic performance represented by 2 items, and operational performance, represented by 2 items.

In this context, SEM was applied to analyze the data, as this method permits the complex relationships observed between latent and observed variables. In the process of analysis, CFA was conducted to confirm the measurement model, which ensures that items "accurately represent a latent construct." Path analysis was applied after extracting the model fit indices to test hypothesized relationships between technological readiness, AI adoption in talent acquisition, and the economic-operational performance of SMEs.

4. Results

Confirmatory Factor Analysis (CFA) was adopted in a forward-looking manner as part of the data analysis which included Structural Equation Modeling (SEM) to ascertain the credibility and accuracy of the instruments that were employed in the study. In social and administrative sciences, CFA is commonly employed for determining the hierarchical relationships among latent variables and observed measures and for evaluating how well the collected data conforms to a particular measurement model that has been developed based on theories [68]. The findings of this assessment are displayed in Table 1.

Table 1.
Measurement Model Evaluation.

Constructs	Items	Loadings	AVE	MSV	√AVE	CR
Relative Advantage	RA1	0.715	0.561	0.482	0.749	0.836
	RA2	0.791				
	RA3	0.772				
	RA4	0.716				
Complexity	CX1	0.675	0.516	0.415	0.718	0.810
	CX2	0.711				
	CX3	0.724				
	CX4	0.761				
Compatibility	CB1	0.752	0.557	0.438	0.746	0.790
	CB2	0.703				
	CB3	0.781				
Cost Effectiveness	CE1	0.624	0.522	0.406	0.722	0.844
	CE2	0.748				
	CE3	0.681				
	CE4	0.754				
	CE5	0.793				
Security and Privacy	SP1	0.732	0.594	0.503	0.771	0.897
	SP2	0.805				
	SP3	0.794				
	SP4	0.744				
	SP5	0.827				
	SP6	0.715				
AI Adoption for Talent Acquisition	AITA1	0.768	0.558	0.419	0.747	0.791
	AITA2	0.747				
	AITA3	0.726				
Economic Performance	EP1	0.722	0.608	0.499	0.780	0.756
	EP2	0.834				
Operational Performance	OP1	0.716	0.567	0.475	0.753	0.723
	OP2	0.788				

The results detailed in Table 1 above confirmed the fact that all the observed variables employed in the measurement of the latent variables in the measurement model were preserved since their loading values exceeded the recommended 0.50 threshold [69]. Further, to evaluate the convergent validity of the measurement model, the Average Variance Extracted (AVE) was utilized. The values of AVE showed that they ranged from 0.516 to 0.608 which in turn means that these values can be averaged out over 0.50 and therefore they have achieved convergent validity [70]. The discriminant validity was also tested over and above the convergent validity using the Heterotrait-Monotrait Ratio of Correlations (HTMT) [71]. It was further elaborated that this technique relies on comparisons of certain elements which are derived from CFA. Therefore, a test was conducted to compare AVE and maximum shared variance MSV where findings proved that all AVE levels were above MSV levels. Furthermore, the square root of AVE was greater than all intercorrelations of latent constructs. These comparisons are generally viewed as a good sign that the measurement model has discriminant validity [72]. At the same time, Composite Reliability (CR) was the index that determined the extent of reliability achieved by the measurement model. Moreover, the figures obtained in measuring this indicator were in the range of 0.723 and 0.897, this meant that the benchmark of 0.70 was

surpassed [73]. From the above, it can be concluded that the measurement model of the research in question is all moderate since validity and reliability levels are acceptable.

Furthermore, there were confirmed forms of structural model goodness of fit indices which were presented in Figure 5 of the studied structural models. The results of the chi-square/degree of freedom ratio (CMIN/DF) were also comforting as a value of 2.681 was found which is less than the upper value of 3 [74]. Similarly, the CFI was 0.917 and TLI also known as TakerLawis was 0.904. Values of these indices which are above 0.90 suggest that there was a good fit between the saturated model and null model's frame [75]. Also, the Root Mean Square Error of Approximation (RMSEA) recorded an above-minimum cut-off of .080 which averts structural distortion within the given model [76].

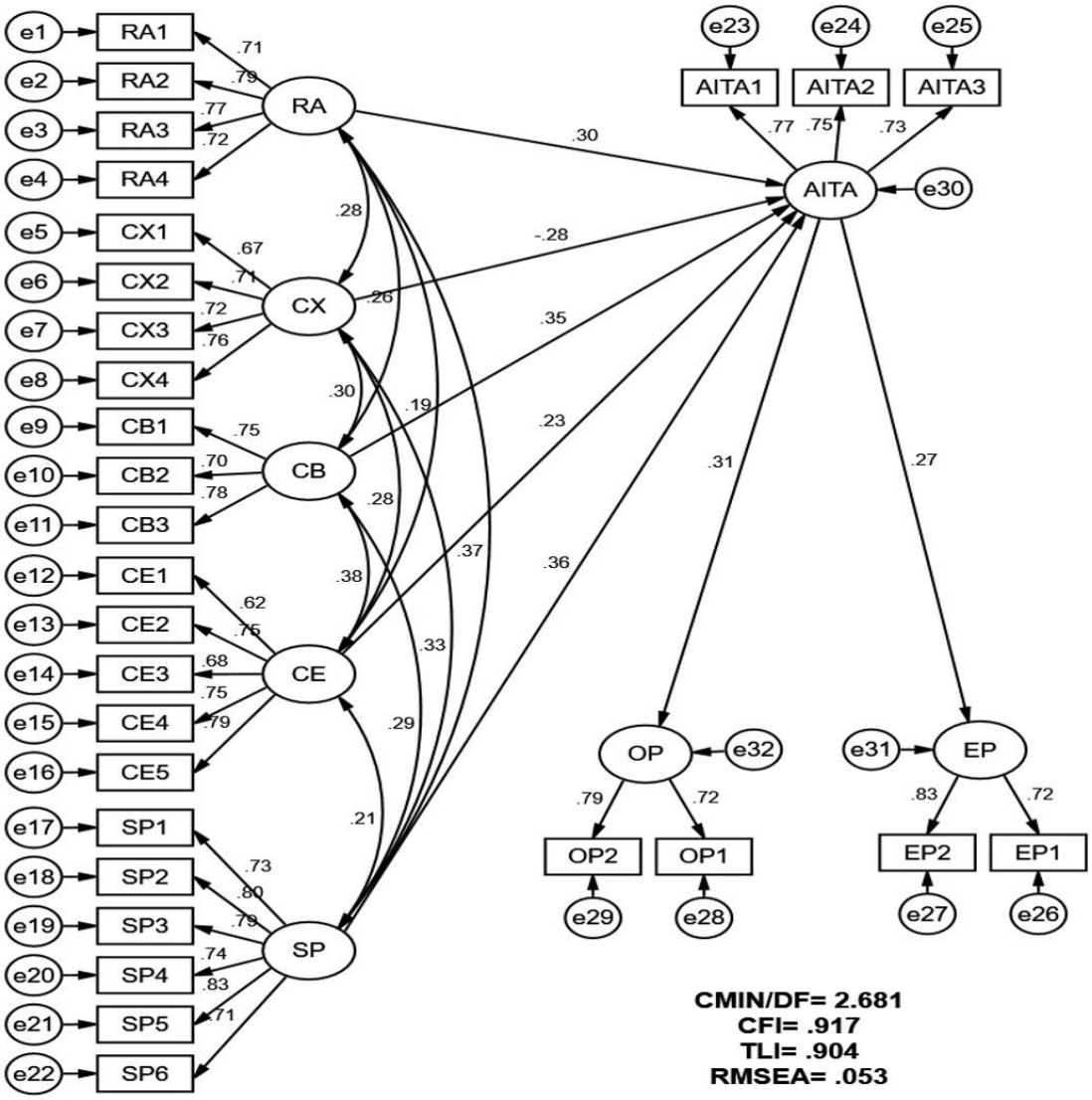

Figure 5.
SEM Diagram with Path Coefficients and Fit Indices.

The results from a study aimed at exploring the factors that determine the willingness and ability to use AI for talent acquisition and the economic and operational outcomes of such usage, which are analyzed employing path analysis and SEM are presented in Table 2.

Table 2.
Path Coefficients for Hypothesized Relationships.

Constructs			B	β	T
Relative Advantage	→	AI Adoption for Talent Acquisition	0.318	0.302	4.67**
Complexity	→	AI Adoption for Talent Acquisition	-0.281	-0.276	-3.85*
Compatibility	→	AI Adoption for Talent Acquisition	0.367	0.349	5.56***
Cost Effectiveness	→	AI Adoption for Talent Acquisition	0.253	0.231	3.77*
Security and Privacy	→	AI Adoption for Talent Acquisition	0.384	0.362	5.73***
AI Adoption for Talent Acquisition	→	Economic Performance	0.292	0.274	4.63**
AI Adoption for Talent Acquisition	→	Operational Performance	0.325	0.311	5.51***

Note: * $P< 0.05$, ** $P< 0.01$, *** $P< 0.001$.

From the results, it can be very clear that there are many issues factors in the AI adoption for talent acquisition, that had diverse effect sizes interventions. The relatively high standardized coefficients of relative advantage, compatibility, and security and privacy concerns, with β = 0.302, 0.349, and 0.362, respectively, correspondingly having statistically significant T-values; each of the mentioned relationships was significant at either the 0.01 or 0.001 level. On the other hand, a negative determinant of AI adoption is complexity, with the standardized coefficient at β = -0.276; the T-value is -3.85, which states that though perceived complexity has acted as a barrier, this is still statistically significant at 0.05 levels. Cost-effectiveness also plays a positive role in the adoption process but only in a moderate way as compared to other factors. Also, AI adoption for talent acquisition increases economic and operational performance at standardized coefficients of β = 0.274 and β = 0.311, respectively.

5. Discussion

The present study established that the AI technology's perceived relative advantage has a positive impact on its utilization for talent acquisition in the context of Jordanian SMEs, and this concurs with the findings penned by several other works [42-44]. This finding suggests that it is the comparative advantage of using AI technology relative to other methods that serves as the best incentive for acquiring talent in organizations. In addition, this study also established that the nature of AI technology influences its utilization for the management of talent in Jordanian SMEs. This finding is also consistent with the wider theoretical framework, which has presupposed that such complexities can make technology adoption and diffusion in practical research less pervasive, as noted in various works such as Carayannis and Turner [45]; Bandi, et al. [46] and Leonard-Barton [47].

Moreover, in the current study, it was found that the extent to which AI technology fits with already existing systems helps in making it acceptable for use in talent acquisition within Jordanian SMEs. This implies that this degree of fit regarding the AI technology with the current systems is a great barrier to the integration of AI in talent acquisition activities. This result is consistent with the study of Phuoc [8], and Badghish and Soomro [42]. In addition, this study found that the cost-effectiveness of AI technology was one of the factors that made it acceptable to Jordanian SMEs in the recruitment sector. These findings are consistent with the findings of Pillai and Sivathanu [49] and Malik, et al. [50] that the cost of the technologies was mentioned as one of the reasons that prevented some organizations from the uptake of AI technologies.

This study highlighted the effects of privacy and security on the use of AI in the hiring process by employees of Jordanian SMEs. This finding illustrates to us how security and privacy concerns are so effective when it decides an organization regarding the incorporation of advancing technology into its operational framework. The findings are similar to those of Mohammad, et al. [2], and Pillai and Sivathanu [49]. Ultimately, this research takes forward the debate on the use of AI in talent acquisition by demonstrating that the implementation of AI corresponds with improvements in operational and economic performance, which points towards AI being the fourth dependency contributing heavily to the overall productivity growth of the organization. These results are also achieved by reference to the research of Alshurideh, et al. [56]; Kotabe, et al. [57]; Acemoglu and Restrepo [58], and Xue, et al. [60].

6. Implications

6.1. Practical Implications

Integrating AI into the talent acquisition strategies of Jordanian SMEs has some very practical implications. First, AI allows these businesses to improve their competitive position in the market. Routine tasks are being comprehensively restructured with AI technologies, thereby significantly reducing operational expenditures due to the improved efficiency of HR in strategic activities, which indirectly leads to increased productivity. Furthermore, this research particularly investigates the level of readiness of SMEs to implement AI in their operations, which is important for both policymakers and business executives. This kind of analysis helps in highlighting which aspects need attention and resources to achieve a smooth assimilation of AI. It also studies the impact of the adoption of AI on employment creation and the development of skills within the same enterprises. Towards this end, whereas some jobs will be lost to AI technologies, other jobs will be created in the management, maintenance, and decision-making processes of the AI technology, thus enhancing employment within high-end industries.

6.2. Theoretical Implications

The conceptual framework in this research considers trends from the Scopus database as it seeks to explore the SOR model concerning the assimilation of AI within the organizational setup. The research makes an extraordinary step in the transformation of a largely behavioral approach to adopting technologies in business by focusing on AI as a factor that catalyzes organizational activities and shapes expectations regarding what operational and financial results will follow. The striking lack of articles emanating from Jordan in this area of study highlights a region-related information deficit that calls for the incorporation of geography and culture in any theory. Such a deficiency suggests a pressing need for theoretical constructs that will support practical problem-solving approaches that are politically and strategically relevant to specific regions.

7. Conclusion

The study presented in this dissertation is thorough and concentrated on assessing the status of preparedness of the Jordanian SME sector in applying AI to their talent acquisition processes. Additionally, the research aims to study the economic and organizational performance implications of the use of AI in such businesses, with particular attention to how

the use of AI will enhance the performance of operations and the financial outcomes of the businesses. It is evident from this study that the progression of AI into talent management, especially recruitment, has several impacts on the performance of the organizations, particularly on the ability and strategic innovation of the Jordanian SMEs.

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