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Importance of Employing Artificial Intelligence in Improving Human Resources Functions

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ABSTRACT

The topic of artificial intelligence (AI) has been the subject of extensive study. Currently, nearly every business is introducing some form of AI into its operational areas in an effort to boost staff productivity. Our research in this paper is based on an analysis of how HR has changed as a result of the increased use of AI. Specifically, the study built a research model to investigate how the IT industry in Libya views artificial intelligence, how easy it is to use, and how much of an impact AI has had on human resources. The research data was gathered from 300 employees at 20 different IT Companies in Libya through the use of a self-administered questionnaire. Research assumptions were tested using a correlation coefficient and regression model, which showed that AI is positively associated with better human resources practices. The analysis results also demonstrate that the mediators given in perceived ease of use and perceived usefulness positively and significantly mediate the relationship between AI and human resources functions.

KEYWORDS: Artificial Intelligence, AI, Human Resources, HRM, Functions, Libya.

1. INTRODUCTION

The fields of medical, finance, education, and business are just few of the many that have embraced computers. It's difficult to conceive of life before the widespread availability of smartphones and laptops. Besides affecting every aspect of our life, the ever-increasing sophistication of computer algorithms has made it possible for the globe to deal with enormous data sets. The speed with which we can now gather, store, and analyze data from around the world opens up boundless opportunities for improvement in every aspect of human life. About 10% of currently available services could be replaced by AI during the next decade. The findings of a survey conducted by the Allegis Group in which at least 300 employees were polled at checkpoints corroborate these observations. Participants' perceptions of the effects of AI on the labor market and careers of the future were found to be "unequal," according to the study.

The massive growth of data and information that many modern firms have badly managed is what prompted the introduction of Artificial Intelligence (AI) into these organizations. This has led to a widespread adoption of digital transformation strategies and technologies by today's businesses. Employees understand the significance of this information in making informed decisions regarding career advancement, personal projects, and corporate goals. According to Megan M. Biro (2016), artificial intelligence is a branch of computer science in which machines are programmed to perform tasks normally performed by people. As technology evolved over the next few years, he looked into how HRM and IT could work together for maximum efficiency. It has been studied extensively how technology might facilitate a streamlined and adaptable process of adoption (Galanaki, Lazazzara, and Parry, 2019). For this reason, we are presently concentrating on technological developments that can assist businesses in automating this procedure. This suggests a deterioration in the value of workers' time and skills in the workplace (Bondarouk & Brewster, 2016). In his piece from 2018, Baxter aimed to foretell the recruitment patterns that would shape the coming year. It uses analytics for foresight to help with recruitment. On the other hand, AI is considered a resource. Interview potential candidates (Baxter, 2018). Autonomous and hence susceptible to learning difficulties, AI-based systems are also autonomous in their operation (Zielinski, 2017; Ryan, 2018). Further, many AI algorithms are limited to carrying out the tasks for which they were originally designed. Because of this, it is essential to examine the AI employed in the recruiting process, comprehend how the machine operates, and avoid arguing about which intelligence is ideal for ethically sound hiring practices.

Recruiters now use in-person interviews, internet profiles, and other methods to narrow down potential prospects.

According to O'Donovan (2019), employers are the ones that initiate contact, offer constructive criticism to trained workers, and conduct interviews. People with disabilities face unique challenges when doing schoolwork, requiring more time and effort on the part of every educator. Human variables including bias, dishonesty, and time constraints are known to impede the recruiting process, and this is a known issue (McRobert, Hill, Smale, Hay, and Van Der Windt, 2018). This is an issue since it means that businesses risk losing the best people for these roles rather than just money (Baron & Agustina, 2018).

The state of technology recruitment research as it stands right now is really weak. So, to attain higher levels of adaptability and quality than in the past, we will have to devote more resources to exploring emerging technologies in the future (Chapman & Webster, 2003; Searle, 2006). But even after some time has passed, the issue remains unchanged. According to Marler and Fisher (2013), there is currently no contract-based method that takes into account technological advancements. It is unclear to investors how these cutting-edge technological advancements will effect human resource management, or if they will pose any difficulties for investors or eliminate jobs for contractors (Stone, Deadrick, Lukaszewski & Johnson, 2015; Bondarauk & Brewster, 2016). As new technology become ingrained in educators' daily routines and the faults with contemporary literature fade away, this is an issue that must be resolved. Thus, the purpose of this research is to investigate how Artificial Intelligence (AI) has helped a subset of Libyan businesses with HR tasks. The primary goal of this research is to determine how the use of AI may enhance HR processes. Determining how the use of AI will affect HR professionals' expectations. Understanding how Human Resource Management can benefit from using AI to increase creativity. the effect of using AI on the usability of HR routines. Determining how the integration of AI into HRM will affect the field's standing as a whole.

2. LITERATURE REVIEW

There are substantial doubts as to whether the rising involvement of AI in the workplace is a reaction to existing operational dangers or production difficulties (Hogg, 2019). Successful business owners probably seek for jobs that meet their profile and interests because of the advantages they see from registering with artificial intelligence systems (van Esch et al., 2019). However, automation is being used by businesses to enhance operations like planning and hiring. Gift projects have a better chance of succeeding with the help of technology. This was recently demonstrated by a group of researchers (Gupta et al., 2018). Traditional intelligence, such as location tracking software, was considered by Kaplan and Henlin (2019) as a way to improve the assessment and selection processes in human resource management.

Expert decision-making systems are just one type of model that has been studied and proposed by numerous authors (Jantan et al., 2010; Masum et al., 2018; Strohmeier & Piazza, 2015; Tai & Hsu, 2006; Daramola et al., 2010; Ramar & Sivaram, 2010; Chien & Chen, 2008). The system provides a variety of options to enhance process execution and job search, among them selection services. Knowledge-based search engines (Strohmeier & Piazza, 2015), which are programs used to locate information on the internet, are one of the most popular AI techniques utilized in the hiring process. By analyzing job postings and user profiles, search engines are able to interpret search queries and locate candidates who are a good match for open positions (Mochol, Jentzsch & Wache, 2007). Technology-based search engines utilize predetermined algorithms that are based on the retrieval of information in the system settings, thus it is important for employers to define any phrases or "parameters" used to describe jobs that do not fit the version. Streamline the process of finding qualified applicants (Celik, 2016). Here's an illustration of how this may work: "By accessing the altar team, search engines can assess whether the vacancies in sales managers are similar to those in search managers" (Strohmeier & Piazza, 2015).

The other software is called "Expert," and it belongs to the earliest and simplest categories of artificial intelligence technology; it is frequently employed in HRIS adoption and decision making. Expertise programs, according to several management guidelines, are most commonly provided in fields that involve working with people (Lucci & Kopec, 2016). The expert system, on the other hand, advises on best practices and makes suggestions rather than delivering instruction. Integration of expert systems in talent acquisition has been the topic of research by Mehrabad and Brojeny (2007) and Daramola et al. (2010). Data mining is another strategy that has been successfully implemented in the recruiting process. Using automated or semi-automatic technologies to extract reliable, previously unknown, intelligent and relevant information from a vast database and make significant judgments, as defined by Simoudis (1996). Data mining tools are not merely restricted to gathering information from enormous databases, but also provide the ability to assess and forecast crucial meanings without preconceived notions and previously unforeseen repercussions. Data mining serves four purposes: communication, organization, analysis, and forecasting (Kantardzic, 2011). Decision tree-based data mining was proposed by Chien and Chen (2008), and this method is used in most cases to classify and predict data across several competing datasets.

The recommended techniques are utilized to acquire information on the human body such as age, gender, marital status, educational level and experience with a view to future academic careers and applicant retention. Strohmeier and Piazza (2015) feel that data mining looks to be an effective

approach through which CV data can be gathered during the initial verification procedure. Additionally, they proposed a sophisticated word processing procedure that makes use of word mining technologies for mental process analysis. The test is able to automatically identify positive and negative sentiments within the free-form text. To gauge potential hires' perspectives on the matter, this method might be utilized in the evaluation process. Intelligent data mining systems to receive and replenish high-volume donations were tested in a study by Chien and Chen (2008). To better identify and recruit candidates for specific tasks, the suggested method based on Method 29 intends to provide work behaviors like production and dismissal. Decisions involving thought are made less frequently by resorting to tried-and-true recipes, as proposed by Petrovich Lazarevich (2001), Dursun and Karsak (2010), and Tai and Hsu (2006), who all proposed an intelligence-based data mining software to aid in candidate selection and final approval.

Artificial intelligence can also be implemented in the form of a decision support system that makes use of artificial neural networks (ANN) and is thus highly prized for the advantages it provides in terms of theoretical development and practical application. To better simulate human learning abilities, machine learning-based artificial neural networks aim to optimize the structure and connectivity of the virtual nervous system (Lucci & Kopec, 2016). As a prototype for evaluating crisis situations, Huang et al. (2004) developed an artificial neural network technology integration into personnel selection system. When evaluating potential employees, physical network training is essential. Physical neural networks are used by Huang et al. (2006) to unearth tacit knowledge and suggest solutions that can be used to forecast the future performance of rivals and validate the contributions of individual team members to certain projects and roles.

3. RESEARCH METHODOLOGY

This study uses a case study approach to evaluate AI's impact on HR service delivery. Human resources professionals from various Libyan IT firms are taking part in this survey. Three hundred Tripoli-based IT workers were polled using a questionnaire. Participants were chosen through a convenience sampling process. It is employed to guarantee that all members of the research population are evenly distributed across the study's sections and that all cases in each subsection are similarly chosen. Quantitative research methods were employed to define the scope of this investigation. A questionnaire was used to gather the information for the study. The developers' perspectives on particular actions were tracked using a five-point Likert scale. The study's investigator handed out questionnaires to Libya's IT companies' human resources departments at no cost to the companies. In order to conduct this research, we utilized the SPSS software. Multiple regression and other statistical analysis tools, such as bar graphs and standard deviations, are used by analysts.

These are the research hypotheses for this study:

- H1: Artificial intelligence has an effect on the efficiency of HR processes.
- H2: Artificial intelligence has an effect on the HRM perceived usefulness.
- H3: Artificial intelligence has an effect on improving functions of HR.
- H4: Ease of use mediates positively the relationship between artificial intelligence and functions of HR.
- H5: Perceived usefulness mediates positively the relationship between artificial intelligence and functions of HR.

The Research Model is as shown in the figure 1:

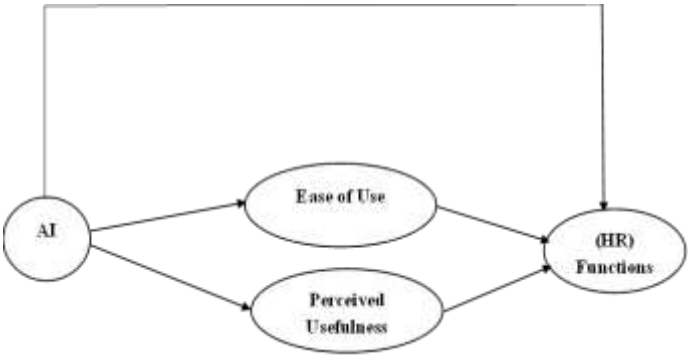

Figure 1. Research Model

3.1. Data Validity and Reliability

The study used the spearman correlation test and the Cronbach alpha to check the data reliability and validity. Researcher confidence in the validity and reliability of the items and data collection tools developed and adopted for use in testing hypotheses and solving the research problem is increased through these validation and reliability testing procedures. The term "validity" is used to describe how well the study's variables actually measure the things they were designed to measure. The high validity of the research variables indicates that the study's findings are consistent with the way the world actually works. Data reliability is the degree to which a study can be relied upon to produce invariable findings that can be applied to solving the study's central problem and providing satisfactory explanations of its guiding questions.

For this study, we used the Spearman correlation coefficient test to ensure the reliability of our results. According to Table 1, all of the study's variables had p-values smaller than 0.05, proving their validity and the researcher's ability to rely on them for solving the primary research problem. A range of 0.438–0.713 was observed for the coefficient value associated with each variable.

Table 1. Data validity

Variables	Spearman Correlation Coefficient	P-Value
Artificial Intelligence (AI)	.523	0.001
Perceived Ease of Use	.645	0.000
Perceived usefulness	.713	0.000
Human Resources Function	.438	0.002

To test the data reliability of the developed research variables the Cronbach alpha test was used and the result are presented in the below table 2.

Table 2. Data reliability

Research Dimensions	Cronbach's Alpha	N of Items
Artificial Intelligence (AI)	.960	7
Perceived Ease of Use	.835	4
Perceived usefulness	.910	6
Human Resources Function	.983	38
All Paragraph	**.989**	**55**

In order to ensure the consistency of the study's variables, the researchers used Cronbach's alpha. According to Table 3.3, the study's reliability values for each variable ranged from an impressive 0.835 to 0.983, with a combined reliability of 0.989.

Each data set should satisfy a number of criteria, but among the most crucial are the reliability and validity of the study's data. According to the results of the validity and reliability tests, the data set used in the study is valid and reliable, allowing the data analysis process to proceed using the data set provided by the study samples.

4. RESEARCH HYPOTHESES

It was found, in testing the first research hypothesis, that there is a positive and statistically significant relationship between AI and the ease of use of human resources' daily tasks (.871), and that this relationship is statistically significant at the (.000) level. Thus, it can be concluded that AI plays a significant and important role in easing the daily tasks of human resources personnel in IT companies in Libya.

The second research hypothesis was tested using Spearman's rho, and the results indicated a correlation coefficient of 0.763 between the two sets of variables. As a result, it's safe to say that the use of AI in HR has had a significant and favorable impact on how people in that field view the value of AI.

A 0.937 value for the AI-HR functions correlation coefficient indicates that the use of AI is having a profoundly positive effect on HR workers' ability to perform their jobs in Libya's IT firms.

The regression model predicts an R^2 of 0.789, which corresponds to a 78.9% coefficient of variation in the dependent variable. Since autocorrelation was not found, it follows that the study's model was appropriately developed.

Using regression analysis on the model, we see that the independent variable does, in fact, have an impact on the dependent variable. The t-value for perceived ease of use is 10.247, while the t-value for artificial intelligence is 23.022. Therefore, it is evident that the ease of use serves as a significant and positive mediator in the relationship between AI and HR duties. Accordingly, the ease of use perception effectively mediates the connection between AI and HR duties.

The r-squared value of 0.798 from the regression model indicates an explained variance of 79.8 percent in the dependent variable. Since autocorrelation was not found, it follows that the study's model was appropriately developed.

Using regression analysis on the model, we see that the independent variable does, in fact, have an impact on the dependent variable. The t-value for Perceived Usefulness is 58,912, while the t-value for AI is 43,340. Consequently, it is evident that the mediator, represented in perceived usefulness, is significantly and positively mediating the relationship between AI and the HR functions. As a result, the perceived usefulness mediates the connection between AI and HR duties very well.

5. ANALYSIS AND DISCUSSION

The regression analysis model was used to test the research hypotheses. Using AI to make human resources administration easier is the primary focus of this study's first research hypothesis. Results from this study show that AI has a sizeable and beneficial effect on improving HR processes. The second hypothesis seeks to investigate the effect that AI has on the general acceptance of the value of human resource management. According to the findings, AI has a direct and substantial impact on how valuable Human resources are seen by Libyan tech firms. The third hypothesis asks whether or not human resource activities can be enhanced through the use of AI. The analysis of the third research hypothesis found that AI has a positive and significant impact on human resources functions. The fourth hypothesis seeks to understand the function of ease of use as a mediator between AI and HR. According to the data, there is a positive and statistically significant link between AI and HR operations, and this link is mediated by how simple it is to use the technology. The fifth hypothesis looks to determine if and how Perceived Usefulness mediates the connection between AI and HR duties. The analysis revealed a positive and statistically significant mediating role for Perceived Usefulness in the connection between AI and HR duties.

Table 3. Hypotheses Testing Result

Hypothesis	Result
AI ▪ Ease of Use	Accepted (Positive and Significant Relationship)
AI ▪ Perceived Usefulness	Accepted (Positive and Significant Relationship)
AI ▪ (HR) Functions	Accepted (Positive and Significant Relationship)
AI ▪ Perceived Usefulness ▪ (HR) Functions	Accepted (Positive and Significant Relationship)
AI ▪ Perceived Ease of Use ▪ (HR) Functions	Accepted (Positive and Significant Relationship)

6. CONCLUSION

In this study, we analyze how AI has altered the delivery of service. In this thesis, the expanded recruiting model developed can be used for further research into any aspect of AI hiring. Researchers and managers can use this information to pinpoint the areas where AI recruitment would be most effective. Furthermore, the study's findings indicate that only a small fraction of businesses actually use AI in the recruitment process. In order to be considered for inclusion in this study or section, references must be cited from reputable external sources. Companies interested in employing AI can take advantage of this study by learning about the merits, difficulties, and results of work planning.

Because AI recruitment is still a relatively new issue, particularly in Libya, there aren't many AI software implementation firms. Many firms only employ AI in the hiring process, which makes a lot of research more difficult. Because most firms use AI infrequently, it struggles to reliably predict results and impacts, therefore the term "artificial intelligence" has been in high demand for quite some time. It's likely that there were too many participants for this study to be useful. Though there are some similarities and differences among the responses, each one is unique.

This study also highlights the novelty of the application of AI to the HR process. Future AI research must be conducted to better comprehend this issue. We gathered individual-level data from a number of countries for this analysis. However, this is not possible until more data on artificial intelligence is made public. Companies that are not currently using AI but are interested in doing so can benefit from participating in this study.

AI-driven business launch decisions can have a substantial impact on a company's long-term survival and the number of profitable cycles it experiences; the values method can assist illuminate these links. When trust in intelligence concerns is established, seasoned researchers in the field of artificial intelligence enhancement can be sought out for their ideas and skills. The topic of this study is occupational discrimination and prejudice. As a result, we can look into whether AI can remove gender discrimination while applying for jobs in the future.In the future, researchers interested in the Libyan context may want to look into the primary barriers that prevent the widespread use of AI in HR. A separate study could also look into what factors influence HR departments' willingness to embrace AI as a work tool.

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