



Examining the Influence of Employees' Perceptions of Artificial Intelligence on Their Acceptance and Implementation Readiness within Knowledge-Based Organizations

Adel Safaei¹, Nashmil Khezeli², Tabasom Habibi Sharifi³, Seyedeh Fatemeh Jalili⁴, Mehri Houshyaramiri⁵, Sajjad Alijanichakoli⁶, Somayeh Ghasemi⁷, Salar Basiri⁸, Elham Aliniadoun⁹, Mirmohammad Seyednouri¹⁰, Mehdi Farzpourmachiani¹¹

^{1,2,8,9,10}Member of the Club of Innovative Minds of the European Academy of Sciences, Postdoctoral in Entrepreneurship, Technofest Institute of Technology University (TITU), Erquelinnes, Belgium

^{3,4,5,6,7}PhD. in Entrepreneurship, Technofest Institute of Technology University (TITU), Erquelinnes, Belgium

¹¹Academician of the European Academy of Sciences, Associate Professor in entrepreneurship, department of entrepreneurship, Technofest Institute of Technology University (TITU), Erquelinnes, Belgium

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Abstract

This research was carried out with the aim of investigating the effect of employees' perception of artificial intelligence on the willingness to accept and implement artificial intelligence in knowledge-based companies. The statistical population of this research is the employees of knowledge-based companies across the Iran, because their number is unrestricted, 384 people were determined as the sample size and data was collected through an electronic questionnaire. The questions of the questionnaire were adapted from the article of Ahn and Chen 2022. In this research, Amos24 software was used to test hypotheses and model structural equations. The results showed that employees' perceptions of AI (including 1: understanding the benefits of AI; 2: understanding the concerns of AI; 3: understanding the vision of AI; and 4: experience of using and ease of access to AI) have an impact on the willingness to adopt and implement AI in knowledge-based companies.

Keywords: Employee perceptions of AI, AI implementation, knowledge-based companies.

Introduction

Without a doubt, today, the acquisition of AI technology is one of the national and business priorities in countries around the world. Private businesses are the driving force behind technical progress in AI, and a large part of the related research and development in the world is carried out by a small number of large technology companies. A report by the McKinsey Institute, which surveyed 35 major technology companies, shows that they spent \$18 to \$27 billion in internal budgets on AI development in 2016, and other companies invested \$8 to \$12 billion in investment and the purchase of active companies in this field has been allocated. The American Council of Science and Technology Advisors predicts that American companies will spend more than \$100 billion annually on AI research and development by 2025. This amount of investment in the



research and development of artificial intelligence has shown the importance of this technology for the progress and comprehensive development of countries. In addition, in many industrialized and even developing countries, governments have designed national goals and strategies for the development of this technology, which include programs to promote research and development of artificial intelligence. The US National Science and Technology Council considers governments as the main users and key developers of AI systems, which have a special responsibility to consider how AI can be used to make work more productive and innovative, and to conduct the necessary investigation into its potential positive and negative effects on society. This research is the first to be conducted in Iranian knowledge-based companies. As a result, the main research question is: What is the impact of employees' perception of artificial intelligence on their willingness to accept and implement artificial intelligence in knowledge-based companies? [1].

Artificial intelligence is one of the emerging technologies of the present era, in which attempts are made to simulate human intelligence in the systems and machines used, which will have a major impact on a wide range of industries and economic sectors. This technology has roots in a number of older recognized disciplines, notably: philosophy, logic, mathematics, computing, psychology, cognitive science, biology, neuroscience, and evolution. There is an inevitable overlap between these disciplines, for example between philosophy and logic, or between mathematics and computing. By carefully looking at each of these cases, a better understanding of their role in the development of artificial intelligence can be obtained, and how these fields have played their role. Previous studies have suggested two scientific and engineering goals for AI. The scientific purpose of artificial intelligence is to define ideas about knowledge supply, learning, regulatory systems, search, and the like that explain different types of real intelligence, but the purpose of artificial intelligence engineering is to solve real-world problems using techniques such as neural networks, natural language processing, support vector machines, etc. Traditionally, computer scientists and engineers tend to have engineering goals, while philosophers, psychologists, and cognitive scientists tend to have more scientific goals. It makes sense to be interested in both of the above objectives, as there are common techniques and these two approaches can feed off each other [2].

There is no common definition to describe artificial intelligence. However, it is commonly referred to as the ability of a machine to learn, adapt to new inputs, and perform processing on them. With the rapid growth of big data technologies, for example, the improvement of computing capability and the extremely fast speed of data processing devices, artificial intelligence can perform many processes in the organizational structure by making available a lot of data and analyzing them. Now, after many years, artificial intelligence is being used in large companies. It has been reported that the use of AI systems with unique capabilities in organizations is rapidly expanding and AI is changing business. The new wave of AI systems has improved the organization's ability to use data to predict the future of the organization and make decisions, significantly reducing the cost of forecasting. According to Gartner's 2018 Technology Trends Survey, artificial intelligence has been named the number one strategic technology. The ability to use artificial intelligence to enhance decision-making, use new business models, and create a customer feedback process will drive digital development by 2025. A Gartner survey found that 59% of organizations are still collecting data to build their AI [2-6].



Babaei and Vaezi in research entitled "Digitalization and the future of government supervision; The impact of digitalization on the government's regulatory performance in the Islamic Republic of Iran from the perspective of the elites" research showed that digitalization will have profound positive and negative effects on the government's regulatory performance in Iran in different dimensions. Also, the results showed that the use of digital technology in the surveillance aspect has a vital role in ensuring the security of a country as large as Iran. Also, improving the government's digital surveillance capacity, on the one hand, requires the facilitation of citizens' activities in the virtual space, and on the other hand, it requires the creation of legal structures for data access; And finally, considering the state of the society, gaining people's trust through the formulation of legal structures is a necessary and fundamental principle in the government's monitoring and use of collected data. Safari and Ansari in a research entitled "Identification and ranking of factors affecting the adoption of artificial intelligence in the public and private sector" showed that in the public sector, 3 important factors of adoption are the support of senior managers, the existence of the necessary infrastructure for artificial intelligence, and the existence of expert and capable forces in the field of artificial intelligence, and for the private sector, the 3 important factors of adoption are increasing efficiency and productivity as a result of the use of artificial intelligence, saving costs by applying artificial intelligence, and ease of use. And learning has been easy. Ahn and Chen in a research entitled "Digital transformation towards government management augmented with artificial intelligence: perception of government employees and the willingness to use artificial intelligence in the government" showed that the willingness to implement and use artificial intelligence technologies in the government depends on a set of positive and negative perceptions about new technologies, a long-term perspective on the role of artificial intelligence technologies in society, and familiarity and experience in using some kind of artificial intelligence applications in the past. In particular, the perception of artificial intelligence that increases the efficiency and effectiveness of work and a positive and long-term vision of the future of artificial intelligence in terms of human power (as an assistant or competitor), the perception of the ultimate harm or benefit of technology (does it do this, harm or benefit humanity), its ability to finally make moral judgments influenced the willingness to support artificial intelligence technologies in the government. A significant portion of the civil servants in the survey sample responded that they have experienced the use of some kind of artificial intelligence applications in their work, and this familiarity had a strong positive effect on their support for artificial intelligence. Our findings point to the importance of training government employees in AI technologies to improve their understanding and appreciation of new technologies as well as their potential in government, which fosters a culture of innovation towards sustainable and impactful digital transformation [8,9,7].

Evaluating the AI role from another perspective have also provide us some insights. In their comprehensive analysis, Farzpourmachiani M. and Farzpourmachiani A. (2024) explore the dual impact of entrepreneurial dynamics on economic growth. They introduce "Attrition Entrepreneurship Theory," which characterizes a form of entrepreneurship that generates income without enhancing societal wealth and may even harm the economy. This theory elucidates how certain entrepreneurial activities, shaped by government policies or societal factors, can lead to economic stagnation. Examples include conflict driven industries, inheritance tax collection, and



discriminatory practices activities that yield profit but lack genuine innovation or long-term societal benefits.

The authors draw a critical distinction between real entrepreneurship, which drives innovation and economic vitality, and attrition entrepreneurship, characterized by the redistribution of existing resources without creating new value. Within this framework, artificial intelligence plays an essential role in nurturing true entrepreneurial spirit by fostering creativity, efficiency, and novel solutions that contribute to sustainable growth [10].

Consequently, integrating AI into entrepreneurial strategies not only enhances productivity but also mitigates the risks associated with attrition entrepreneurship. By promoting an environment conducive to genuine innovation, AI supports long-term prosperity and underscores the necessity of a robust intellectual property framework for authentic entrepreneurial ventures driving economic dynamism and societal advancement.

The rapid advancement of artificial intelligence (AI) is fundamentally reshaping contemporary economies and, consequently, the nature of work itself. Organizations across diverse sectors are increasingly adopting AI tools to optimize a wide range of human resource management (HRM) functions – from strategic workforce planning to understanding employee attrition – signaling a significant shift in operational paradigms. However, realizing the full potential of AI within organizations requires careful consideration of technological, organizational, and environmental factors, as well as a proactive approach to addressing associated challenges.

Recent research has begun to illuminate the complex dynamics surrounding AI adoption and its impact on both individual employees and broader organizational culture. Several studies leverage established frameworks like the Technology-Organization-Environment (TOE) model to investigate the key determinants of successful AI implementation. For example, Siradhana et al. [11] demonstrate that factors such as cost-effectiveness, relative advantage, top management support, HR readiness, competitive pressure, vendor support, and crucially, trust in AI among HR managers, positively influence AI adoption within Information Technology & Enabled Services (ITeS) companies. This highlights the critical role of fostering confidence and addressing security/privacy concerns that can hinder implementation.

Beyond identifying enabling factors, research is also focusing on the socio-ethical implications of AI integration. José Andrés Gómez Gandía et al. [12] emphasize the dual nature of AI's impact, noting its potential to enhance workplace safety and inclusion through tools like real-time risk monitoring, while simultaneously acknowledging the ethical dilemmas arising from privacy concerns and a lack of transparency. Their work underscores the importance of transparent implementation practices and addressing the psychological impact of automation on employee morale and cohesion.

The specific context of AI adoption also appears to be crucial. Hradecky et al. [13] found that the European exhibition industry is currently a slow adopter of AI, potentially impacting future competitiveness despite pandemic-related impetus for change. Their research introduces an “Exhibition Sector Readiness for AI Adoption Model” identifying key motivators and inhibitors specific to this sector, including technological confidence, financial resources, and data



management capabilities. Similarly, Chen et al. [14] investigate the role of employees' intention to adopt AI applications and a firm's big data analytical capability in high-tech firms, revealing that integration capability mediates the relationship between these factors and operational performance.

Further studies explore readiness within specific organizational contexts. Boyacı et al. [15] demonstrate a positive level of medical AI readiness and openness to change among healthcare professionals at a university hospital in Istanbul, while Felemban et al. [16] identify government support, senior management backing, and employee attitudes as key facilitators for AI adoption in construction projects within Saudi Arabia, aligning with the nation's Vision 2030 goals.

Finally, several studies adopt broader perspectives on the human-AI interplay. Bankins et al. [17] provide a systematic review of empirical research highlighting themes such as human-AI collaboration, perceptions of algorithmic capabilities, worker attitudes, and the implications for labor markets. Murire et al. [18] similarly synthesize existing literature to understand AI's impact on work practices and organizational culture, emphasizing the importance of effective leadership, transparent communication, and skills development.

Collectively, these studies underscore the multifaceted nature of AI adoption in organizations. They provide valuable insights for senior executives, HR managers, researchers, AI designers, developers, and policymakers seeking to navigate this evolving landscape. By strengthening understanding of the technological, organizational, ethical, and human factors influencing AI implementation, businesses can maximize its benefits while mitigating potential risks and fostering a future of work that prioritizes both efficiency and employee well-being.

Research hypotheses:

Reliability: This questionnaire, adapted from Ahn and Chen (2017), was examined using confirmatory factor analysis (CFA) and structural equation modeling (SEM) in Amos software. Internal reliability was confirmed through the internal consistency of the items (such as the standardized coefficients in Figure 3).

Validity: The conceptual model (Figure 1) and factor analysis model (Figure 2) show that the independent variables (perceived benefits of AI, perceived concerns, perceived AI landscape, and experience using and accessing AI) are well-designed with the dependent variable (willingness to adopt and implement AI). CFA analysis with standardized coefficients confirms this.

Convergent Validity: The standardized coefficients of the items (Q1 to Q22) in Figure 3 are significant at the 95% confidence level, indicating the convergence of the items with the constructs.

Criterion Validity: Hypotheses H1 to H4 are supported by confirmed statistics (95% confidence level), which confirms the criterion validity.

Therefore, this questionnaire is statistically valid and reliable for measuring the desired variables in knowledge-based companies.

H1. Understanding the benefits of artificial intelligence has an effect on the willingness to accept and implement artificial intelligence in knowledge-based companies.

H2. Understanding the concerns of artificial intelligence has an effect on the willingness to adopt and implement artificial intelligence in knowledge-based companies.

H3. Understanding the perspective of artificial intelligence has an effect on the willingness to accept and implement artificial intelligence in knowledge-based companies.

H4. The experience of using and ease of access to artificial intelligence has an effect on the willingness to accept and implement artificial intelligence in knowledge-based companies.

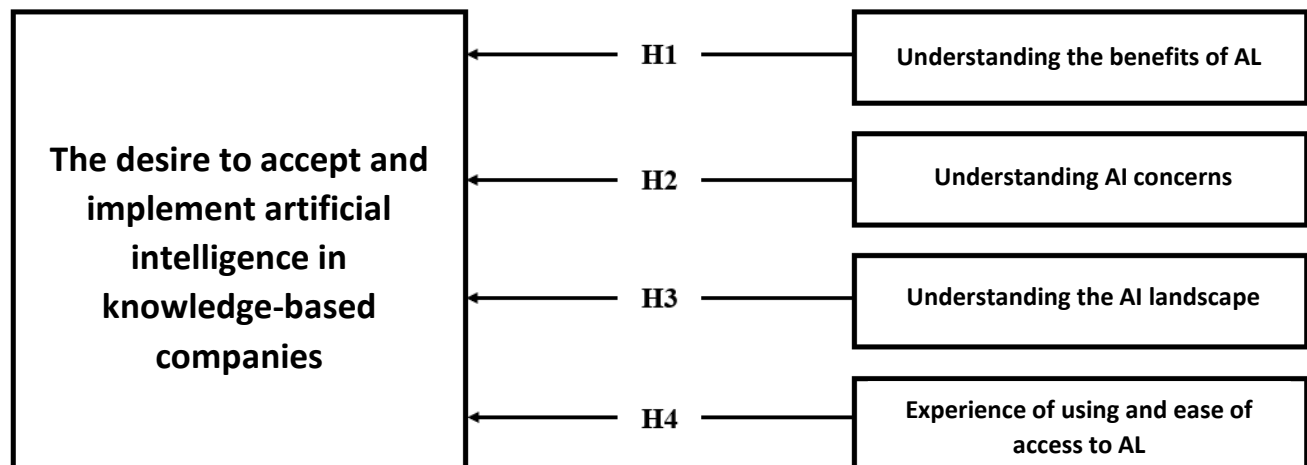


Figure (1): Conceptual model (adapted from Ahn and Chen) (7).

Research Methodology

This research is practical in terms of purpose; and it is descriptive in terms of its data collection. Survey research is used to investigate the distribution of characteristics of a statistical population. The purpose of descriptive research is to describe the phenomenon or conditions under investigation. Descriptive research can be used to learn more about existing conditions or to help the decision-making process. The statistical population of this research is the employees of knowledge-based companies across the country, because their number is unrestricted, 384 people were determined as the sample size and data was collected through an electronic questionnaire. The questions of the questionnaire were adapted from the article of Ahn and Chen. In this research, Amos24 software was used to test hypotheses and model structural equations [7].

Research Findings

In the continuation of this research, confirmatory factor analysis, model fitting and analysis of research hypotheses are presented.

Confirmatory factor analysis

Before fitting the structural model, it is necessary to check whether the items observed in the questionnaire reflect the research variables in a favorable way. The overall fit of the measurement model is determined through confirmatory factor analysis (CFA). Figure 2 shows the measurement model for this research.

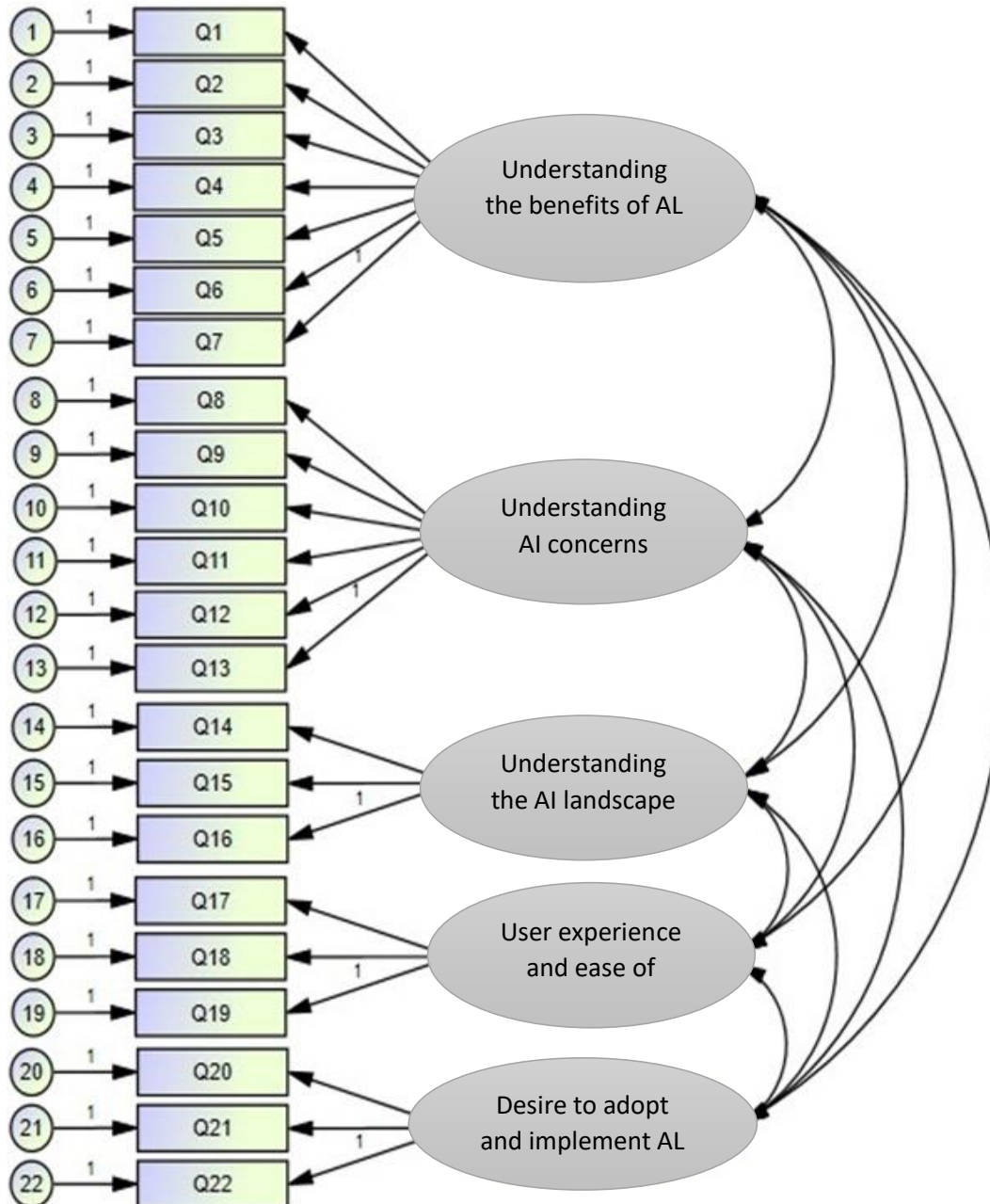


Figure (2): Factor analysis model

After running the desired model, some modifications were suggested by the software, the implementation of which led to the improvement and suitability of the model. The modifications suggested by the software were in the form of releasing the covariance between a number of error terms. The measurement model with its modifications is shown in Figure 3.

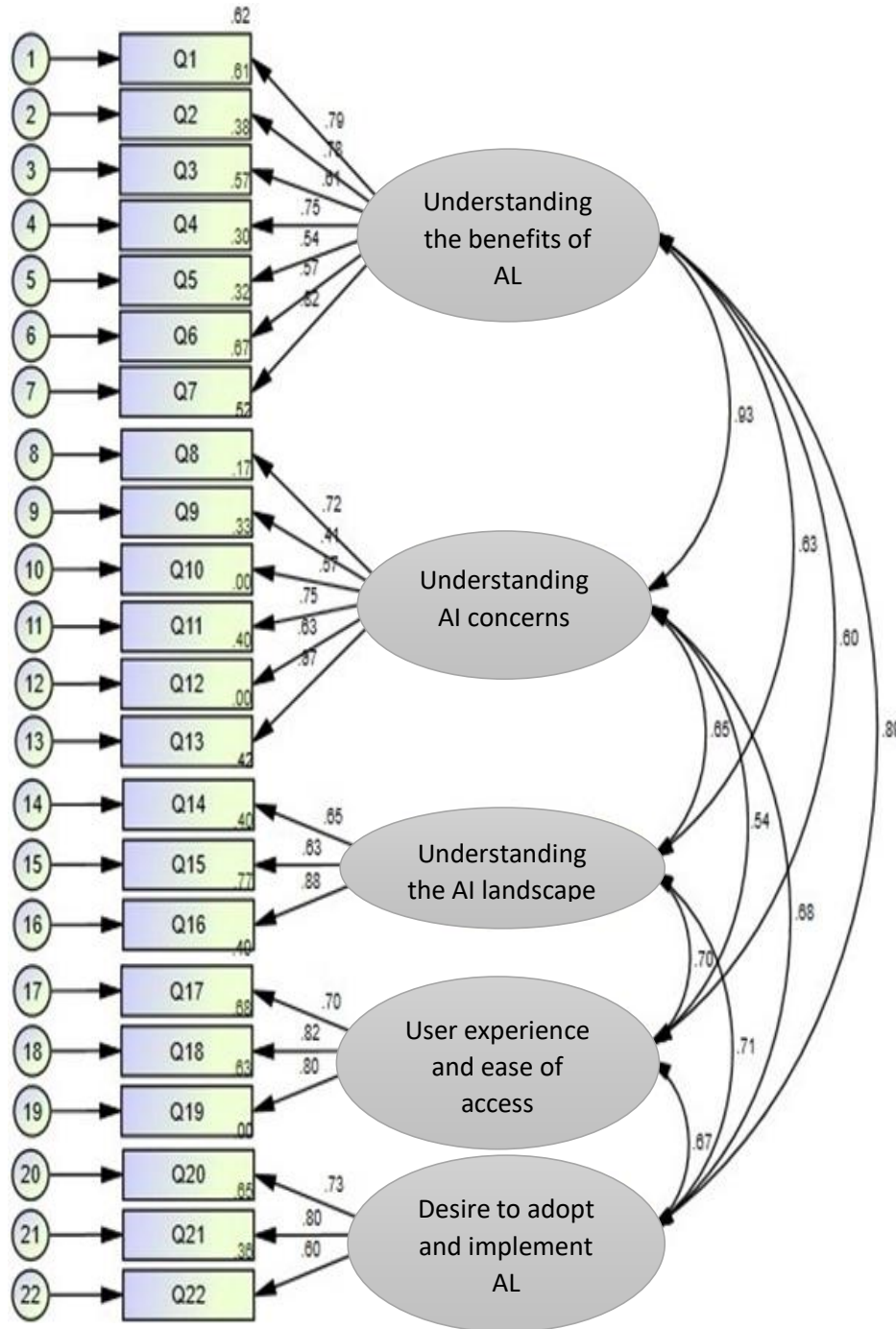


Figure (3): Factor analysis model with standardized coefficients

In Figure 3, the numbers on the paths are standardized coefficients. The standardized coefficients are the same as the model coefficients and it is possible to compare them for various variables.

Model fit

The fit criteria of the research conceptual model are shown in Table 1. If the values of the fit indices are in the desired range, they indicate the suitability of the model for the collected data.

Table (1): Factors affecting the development of digital entrepreneurship in the cosmetics and health industry

Model fit indicators	CIMIN / df	GFI	IFI	TLI	CFI	NFI	RMSEA
Original pattern	4.501	0.990	0.951	0.990	0.948	0.930	0.009
An acceptable level	to 5 1	More than 0.9	More than 0.9	More than 0.9	More than 0.9	More than 0.9	Smaller than 0.05

Table 1 shows that all fit indices are in a suitable range. As a result, the suitability of the structural analysis model in fitting the collected data is confirmed. According to the results of the structural model of the research, the results of the path analysis of the research hypotheses will be explained in the following.

Analysis of research hypotheses

In order to check the hypotheses of the research, it is necessary to check the significance of the simultaneous relationship between the variables.

Analysis of information collected from research questionnaires at the 95% confidence level showed that understanding the benefits of artificial intelligence has a positive effect on the willingness to accept and implement artificial intelligence in knowledge-based companies. Understanding the concerns of artificial intelligence has a negative effect on the willingness to adopt and implement artificial intelligence in knowledge-based companies. Understanding the perspective of artificial intelligence has a positive effect on the willingness to accept and implement artificial intelligence in knowledge-based companies. The experience of using and ease of access to artificial intelligence has a positive effect on the willingness to accept and implement artificial intelligence in knowledge-based companies. The summary of the results of research hypotheses is shown in Table 2.

**Table (2): Summary of the results of research hypotheses**

The hypotheses	Status
H1. Understanding the benefits of artificial intelligence has an effect on the willingness to accept and implement artificial intelligence in knowledge-based companies	Confirmed at 95% confidence level
H2. Understanding the concerns of artificial intelligence has an effect on the willingness to adopt and implement artificial intelligence in knowledge-based companies	Confirmed at 95% confidence level
H3. Understanding the perspective of artificial intelligence has an effect on the willingness to accept and implement artificial intelligence in knowledge-based companies	Confirmed at 95% confidence level
H4. The experience of using and ease of access to artificial intelligence has an effect on the willingness to accept and implement artificial intelligence in .knowledge-based companies	Confirmed at 95% confidence level

Conclusion

This research was carried out with the aim of investigating the effect of employees' perception of artificial intelligence on the willingness to accept and implement artificial intelligence in knowledge-based companies. 384 employees of these companies from all over the country participated in this research. Four hypotheses were examined in this research, all of which were confirmed at the 95% confidence level. The obtained results are in line with the results of Ahn and Chen. Through the analysis of data collected from research questionnaires, it can be concluded that various factors influence the willingness to accept and implement artificial intelligence in knowledge-based companies. These factors as examined include: 1. Understanding the benefits of artificial intelligence: People who understand the benefits and advantages of using artificial intelligence will be more inclined to accept and implement this technology. 2. Concerns related to artificial intelligence: If people have concerns related to artificial intelligence, they are likely to be less interested in adopting and implementing it. 3. Vision and experience of use: People who have a positive vision of artificial intelligence and experience successful use of it, will be more interested in adopting and implementing it. 4. Ease of access to technology: Increasing the ease of access to artificial intelligence technology can also help increase the willingness to use it in knowledge-based companies. Therefore, according to these factors, researchers and organizations can design appropriate training and awareness programs to increase the willingness to accept and implement artificial intelligence in knowledge-based companies.



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