

# Proposed Model for Artificial Intelligence Acceptance in Recruitment: Telecom in Jordan

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## INFO

Received: 17.02. 2021

Accepted: 16.04.2021

Available on-line: 15.06.2021

Responsible Editor: R. Szilagy

## Keywords:

HRM, EHRM, UTAUT2, AI.

## ABSTRACT

Organizations often aim to conveniently and rapidly provide their clients with a competitive value, so many organizations have taken advantage of the enormous technology and communications growth and introduced their services electronically and switched from 'traditional management' to 'electronic management.' In this context, HRM was designed to be EHRM, and the implementation of AI in the HRM is being presented at the time of the digital world. However, many organizations still have difficulties, particularly in developed countries, regarding the level of consumer acceptance of these services. There is still little awareness of user recognition of the use of AI in HRM services. In addition to this, previous literature research on the adoption of AI in HRM was mainly performed in developing countries. This study's primary objective was to provide a theoretical discussion and propose a theoretical framework for adapting HRM AI in the telecom sector in a developing country such as Jordan. Also, it addresses the variables that may influence the level of acceptance of the extended UTAUT2 model and describes the variables that affect the level of acceptance.

## 1. Introduction

Information technology (IT) in the human resources sector is an indispensable tool for achieving competitive advantages among organizations. Since its growth, many factors have affected human resources management (HRM), including the IT revolution. HRM techniques have been used to improve process performance with the help of early machine innovation. The idea of the Human Resources Information System (HRIS) has therefore grown exponentially, drawing the attention of organizations and HR representatives to its confirmed contribution to cost-saving and competitive advantage. It also attracts researchers' interest in determining its actual impact and clarifying its adoption drivers across different market sectors. Practitioners have observed the advent of EHRM (Electronic Human Resources), reflecting the use of technology services in HRM (Saxena and Kumar, 2020). EHRM has dramatically contributed and provided more strategic value to the extension of HRM within the sector. This developed an interactive method on which all performers, whatever their geography or location, emphasize the HR position by replacing conventional approaches with more technologically dependence (Sivathanu and Pillai, 2018).

Moreover, while HRIS was primarily directed at being utilized by HR workers in companies, EHRM played a significant role in including other customers and stakeholders in the decision-making process, thus adding to the HRM more strategically. Today, industry 4.0 is stated to have made substantial changes in the economy at large and HRM, in particular. Rapid technological developments, such as Artificial Intelligence (AI), alter occupations and roles that contribute to imperative competitiveness and embody potential market behaviour. As a result, HRM used AI-solutions in its processes to improve efficiency and consistency. While there is no consensus, researchers used a variety of terms such as

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Smart Human Capital to apply to AI-based HRIS 4.0 (Thomas *et al.*, 2020), Human Resources Management 4.0 (Liboni *et al.*, 2019), and Intelligent Human Resources Management Knowledge Processing (Zhang and Wang, 2006). Recently numerous AI-based HR technologies have become more appealing to organizations and HR managers. These intelligent HR systems offer solutions that automate time-intensive processes without intervention from human beings. Given its lengthy and costly service, the early HR characteristics of recruiting and selection involved AI's function. AI is the new constructing block that can be vouched in HRM, in which recruiting employees, especially talents, can become more effective. Recruiting the most talented applicants side to side with focusing on diversity is a big challenge organization usually face (Upadhyay and Khandelwal, 2018). AI can now overcome these challenges and support recruitment processes. However, organizations often overlooked harnessing the latest technologies in the human resources departments, which slows this section down. Given the fact that HRM has become the heart of the organizations, where all parties are connected, reliance on AI has become a must in the era of transformation that we are witnessing nowadays (Popenici and Kerr, 2017).

The technological implementation and deployment has attracted university students' attention and culminated in various frameworks for the performance of technology, for example, the Technology Acceptance Model (TAM), Diffusion of Innovation Theory (DOI), The Unified Theory of Acceptance and Use of Technology (UTAUT). These models were developed to identify variables that substantially impacted new technology reception and implementation. Although AI in HRIS suggests that HRM functionality should be significant, consistent with the industry 4.0 age, research related to its adoption and HR-professional attitudes towards HRIS is alarming.

This research is intended to review the theories that explain the user acceptance of new technologies, and then, developing an extended framework model based on UTAUT 1 and UTAUT 2 to serve the best in the environment of a developing country like Jordan, more especially the acceptance of the Jordanian telecommunication companies in adapting AI in the recruitment process.

## **2. Context of Jordan**

In 2001, it was reported that 85 percent of Jordanians had never been logged in to the internet and never found important information online (Al-Hujran and Al-dalahmeh, 2011). However, in 8 years duration, the situation has changed. (Microsoft, 2019) performed a study on AI adjustment in the Middle East and Africa. Considering Jordan as a developed country in providing the readiness environment to use AI is the subject of this report; the researchers are concerned about the results that contributed to the Jordanian background. Microsoft has granted Jordan's business environment a trusted certificate by confirming that most local companies are ready to use AI. The main reason was also that the government is developing its infrastructure and fostering Arab and foreign investment. The study also showed that 62 percent of Jordanian companies believe that artificial intelligence relates to executives, and 48 percent seek AI integration opportunities with their businesses. This study focused on Jordan's Telecommunication sector.

The move to AI is a continuous journey along the path with some companies than others. When dealing with early adoption, the vast majority of surveyed organizations have not progressed beyond the early pilot phases. Beyond the early stage and already accelerating in the released maturity phase, specific organizations are clear leaders in their respective sectors. Those organizations think they are advanced because AI technologies are already being used in their business.

### **2.1. Telecommunication sector in Jordan**

Jordan's population boom over the last decade and the migration of refugees into the country are in several respects a unique market. The telecommunication sector of Jordan is dynamic and dominated by three leading regional companies. With 4,045 employees, Jordan's telecommunications industry created unlocking revenues of \$1,423,771,401 in 2018. It is expected that by the expansion of networks, the launch of the new, emerging innovations such as 5G, the Internet of Things (IoT), data security, automation, artificial intelligence (AI), Blockchain, and Machine-to-Machine (M2M) would intensify the eventual development of the telecommunications industry.

In Jordan, the telecoms market has begun to see convergence and thereby improve its productivity in sharing its networking properties. The implementation of AI could be constrained by various possible challenges, including data protection and safety, capabilities and expertise; consumer and customer readiness; legal and regulatory environments; infrastructure; market strategy, costs, knowledge, and awareness (Kritzinger and Smith, 2008). Barriers to organizational readiness include the absence of new education methods, information, and understanding barriers that restricted the spread of the AI systems in Jordan (Dmour *et al.*, 2020). Perhaps the most significant obstacle to AI adoption is the technology's lack of maturity. As the number of business intelligence solutions increases, the best business development solutions are challenging to keep up with the lack of AI expertise, and data analysis is another significant barrier to AI adoption. The telecommunications industry may be particularly vulnerable to this problem, although the limited number of AI experts poses a challenge to all sectors. Computer scientists and data analysts may prefer other industries to apply their skills without proper incentives. This may imply that businesses will eventually have to find partners to help launch their solutions for AI. In this case, the cost of adoption may become a new challenge.

Using regular and updated acceptance models is an attempt to investigate the perception of technology by people (Aburumman, *et al.*, 2020). This study aims to propose a framework model to test the acceptance of using AI in the HRM in Jordan's telecommunication companies, considering the sector and the business environment availability.

### **3. AI in HR:**

AI is the main computer science component. It is the part that focuses on the construction of intelligent machines capable of carrying out tasks commonly of the intelligence of the human being (Builtin, 2019). Artificial intelligence can also be defined as every computer or automatic device automatically programmed to think like the human brain to serve different vision, understanding, thinking, and solving tasks.

Studies in technology and company with specific emphasis on AI, IoT, and Machine Learning facilitate decision-making based on priorities that make smart systems complicated and ambiguous (Haldorai, *et al.*, 2020). These systems can also achieve human functions dynamically and knowledgeably, such as modifying, fixing, understanding, and utilizing the numerous forms of data (Popenici and Kerr, 2017). It has also improved every organization's potential to offer high-quality, effective governance (Nasrallah, 2014).

There are various applications and systems in the age of technology that can provide organizations generous support. Today, employers can use AI for virtually all activities, particularly in HRMs, which can be electronically sourced, screened, matched, and rated (Mondal, 2020). Adopting and applying AI has been a straightforward path to accomplish organizations' goals (Rieder *et al.*, 2020). This paper proposes a model of acceptability for AI usage in HR in Jordan's telecommunication companies.

#### **3.1. UTAUT2 model and Adoption of AI**

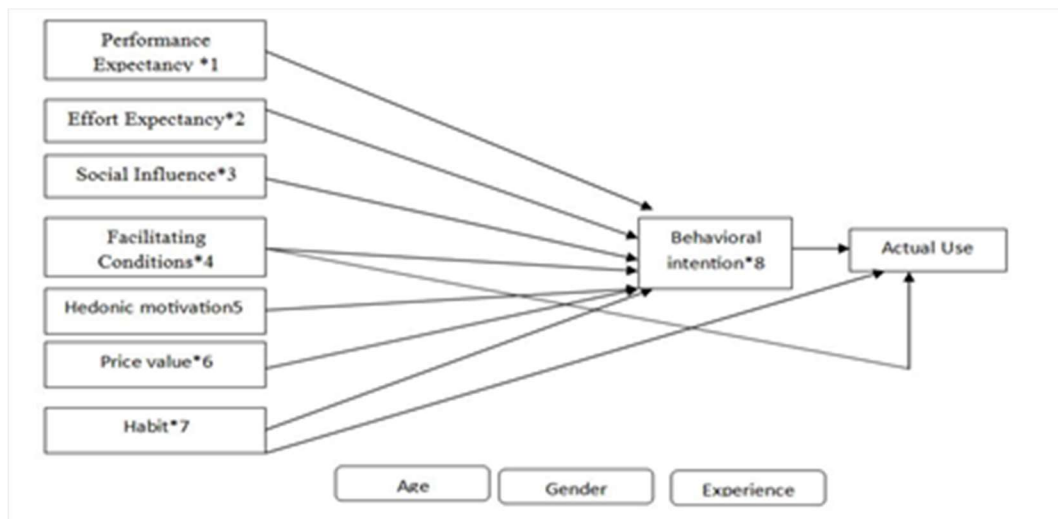
The distinction in recognition of any modern technical know-how is also focused mainly on technology acceptance models in the literature. These models also clarified the reasons that measure these technologies' acceptance (Raghavan *et al.*, 2020). One of the most important frameworks of technology acceptance study Davis, Bagozzi and Warshaw, (1989); Park, (2009) was the Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA). In addition to its utility, it has been observed that TAM is once forecasting less than 50% of embracing scientific cases (Venkatesh and Davis, 2000a; Park, 2009). Thus, on the grounds of a comprehensive literature review on technical acceptability (Venkatesh *et al.*, 2003a), the UTAUT model was suggested that will eventually help to overcome TAM's vulnerabilities.

UTAUT has become a common choice as this structure incorporates some variants from eight robust theories, including the TRA (Fishbein, 1975), the TAM (Davis, *et al.*, 1989), which provide four

essential elements of scientific acceptance, such as performances expectancy, efforts expectancy, facilitating conditions and social influence.

This framework is thus perceived to help significantly understand customers' intention to accept new technologies such as AI systems. Using AI will thoroughly comprehend the individual characteristics of UTAUT employers (Rishi *et al.*, 2017). Acquisitions, reviews, and training of new human capabilities in companies will be adorned with AI's implementation. It allows workers to make smart decisions and to develop the best expertise at the desired moment. The assessment of the adoption of any emerging technology is also focused on models of technology acceptance.

These models usually describe the predictive acceptability variables (Venkatesh, Chan and Thong, 2012). One of the most important modes of technology acceptance study was the technology acceptance model (TAM) and the Theory of Reasoned Action (TRA), regarded as the application of the theoretical theory of psychology (Fishbein, 1975). In this study, the researchers decided to use the UTAUT2 acceptance model because it is the most recent acceptance model. Moreover, It is underpinned by the eight previous theories of acceptance. UTAUT2 is more flexible, and it can predict 70% of the cases of adoption when comparing it with other models, which can only predict 40% of these cases (Venkatesh *et al.*, 2003). In (figure 1) below, it shows the extending model of UTAUT2.



**Figure 1.** Extending the Unified Theory of Acceptance and Use of Technology (UTAUT2) (Venkatesh and Thong and Xu, 2012)

- **Performance Expectancy (PE)**

In the UTAUT2 model, Performance Expectancy (PE) defines end-user compartmental purpose. It will show "the extent to which an end-user feels that utilizing the application software can help achieve a specific solution or job efficiency" (Venkatesh *et al.*, 2003). One may trust the success of digital technology (Mohd Suki and Mohd Suki, 2017). It looks like a presumed utility, trust, job flexibility, relative advantages, and an expected outcome of a particular technology (Ahmad, 2014). During early testing, the researchers found a significant influence on their behavioural purposes as well as mental health facilities (Alan, Hu and Barua, 2018) on their performance. Therefore, a person's expectation of performance can impact his decision to use new technologies such as AI to attract talent.

- **Efforts Expectancy (EE)**

"The ease correlated with utilizing the device" is clarified in Effort Expectancy (Venkatesh *et al.*, 2003). Simple accessibility of technology tends to drive customers to adopt the technology (Dwivedi *et al.*, 2017). The user-friendliness of the system was sure to increase the desire to use that particular method (Salloum and Shaalan, 2019). A significant and successful AI predictor is called an initiative expectation (Lu, Hsu and Hsu, 2005). Prior research revealed substantial and positive collaborations for effort perceptions in a related area. The study of mobile banking services (Ghalandari, 2012) indicates that consumers tend to make optimistic use of technology, provided that there is less effort required to

use or manage an individual system. (Onaolapo and Oyewole 2018) found the important positive connectivity of smartphone user preferences. Other findings also show that the expected contribution to technology is being made visible for customers (Alalwan *et al.*, 2014).

- **Social Influence (SI)**

In social terms, a person believes that the people around him are essential in deciding to use the new way (Venkatesh *et al.*, 2003). Acceptance of technologies relies on social effects and not just on people (Youngberg, Olsen and Hauser, 2009). Amongst the most significant social considerations in the preference for technology usage for citizens is the perceived performance of innovations (Amin *et al.*, 2008). The social effect of personal technology engagement can be evaluated (Venkatesh, Chan and Thong, 2012). It is noted that individuals have psychological pressure, such as friends, relatives, employers, etc., which may also impact a willingness to act (Tarhini *et al.*, 2016). In this sense. Several scholars have analysed the positive and significant impact of technology's interpersonal usage in social regulation (Arman and Hartati, 2016). There have been merged views on the effect of social effects on behaviours since the impact of utilizing AI was also found in absenteeism (Chatterjee and Bhattacharjee, 2020). However, we see significant indicators in the above literature that technologies like IA's social influence are also a good predictor. The following theories are then established in the subsequent discussions.

- **Facilitating Conditions (FC)**

The citizens' behavioural ambitions to use technology are another driving factor (Salloum and Shaalan, 2019). It was described as the degree to which an individual believes that there are organizations and technical infrastructure for system use (Venkatesh *et al.*, 2003). The FC components are consistent with other structures and behavioural control (Lee and Lin, 2008). Moreover, FC plays a vital part in applying and using technology for people and organizations (Chiu *et al.*, 2012). The FC AI systems can be recognized explicitly through technological services or consumer instruction. Clear relations were developed to promote influences and behavioural intentions (Yi *et al.*, 2006). Uddin *et al.*, (2019) reported that evidence for the electronic systems' behavioural impact is essential.

- **Hedonic Motivation (HM)**

HM is defined as The fun or happiness obtained by technology (Venkatesh, Thong and Xu, 2012). HM was potentially found to be a significant factor in forecasting the decision to implement IS study technologies (Alalwan *et al.*, 2014). In this research, consumers who feel enjoyable and entertaining to use AI systems and are more focused on the course topics are more inclined to use it. Hedonic inspiration may vary as individuals with diverse cultures and demographics.

- **Price value (PV)**

According to Venkatesh *et al.*, (2012), PV, the cognitive trade-off between the potential advantages and the monetary expense of utilizing individuals' applications is established. If the edges of following a given scheme are higher than the financial costs, the price benefit is positive. It is anticipated that in this analysis, as users feel that the advantages of using the system are more significant than the monetary costs, they will most likely use the AI systems.

- **Habit (HB)**

HB is described as the degree to which people appear to execute behaviours spontaneously due to learning accrued from their experience of utilizing such technologies (Venkatesh *et al.*, 2012). According to (Venkatesh *et al.*, 2003), Habit has been recognized as an alternative determinant of the utilization of technologies and behavioural purposes. This study predicted that if people have more habitual device behaviour, they are more inclined to follow it. It is clear that the acceptance model for the adoption of technology typically focuses on the general influences affecting end consumers in general to embrace emerging technologies. These frameworks may be applied to modern developments and offer an analysis of the factors affecting their acceptance. For the following purposes, UTAUT2 is



to be implemented (Venkatesh, Chan and Thong, 2012). UTAUT2 was drafted from 8 past theoretical frameworks and hypotheses; therefore, UTAUT2 is an integrated model strongly endorsed by literature theories. In evaluating the acceptance of usage of technologies and actions, UTAUT2 is more versatile than other theoretical models. Besides, UTAUT2 is reasonably reliable, and 70% of the IT adoption cases can be predicted instead of the further consumer adoption (TRA, TAM, TPB) models, which can only estimate approximately 40% of cases (Venkatesh *et al.*, 2003). UTAUT2 may refer to nations, age ranges, and technology in various countries. It may recognize other vital variables that can lead to growing UTAUT's deployment to a wider variety of market technologies. UTAUT2 is a credible model used in a wide variety of technology implementation studies (Mornizan Yahya *et al.*, 2011). In the developing world, UTAUT2 has primarily had rarely been tested. This paper attempts to follow UTAUT2 to explore the acceptance of AI in HRM from Jordan's point of view as a developing country. UTAUT2 was eventually repeatedly utilized for analysing the successful influences shaping adoption and usage of technical purposes (Alazzam *et al.*, 2015).

#### 4. Proposed Research framework

The purpose of using AI is connected to a feeling of deciding the aim of a person to perform a particular task (Fishbein, M., & Ajzen, 1977). A significant indicator of the fundamental actions which express the purpose is the intention to use AI (Zhang and Gutierrez, 2007). Action in support of acts that define one's goal of using AI is intended as a vector mediating (Nasrallah, 2014). Various types of studies indicate that behavioural intent is the most significant comportment predictor. In their most recent studies, Chatterjee and Bhattacharjee, (2020) stated that the behavioural purpose has a beneficial and essential impact on actual implementation to incorporate AI. In most UTAUT models, behavioural objective thus depicts a substantial influence on a person's definite AI preference. In this study, the researchers extended the UTAUT2 model adding the Trust variable for the reasons shown below.

##### 4.1. Trust

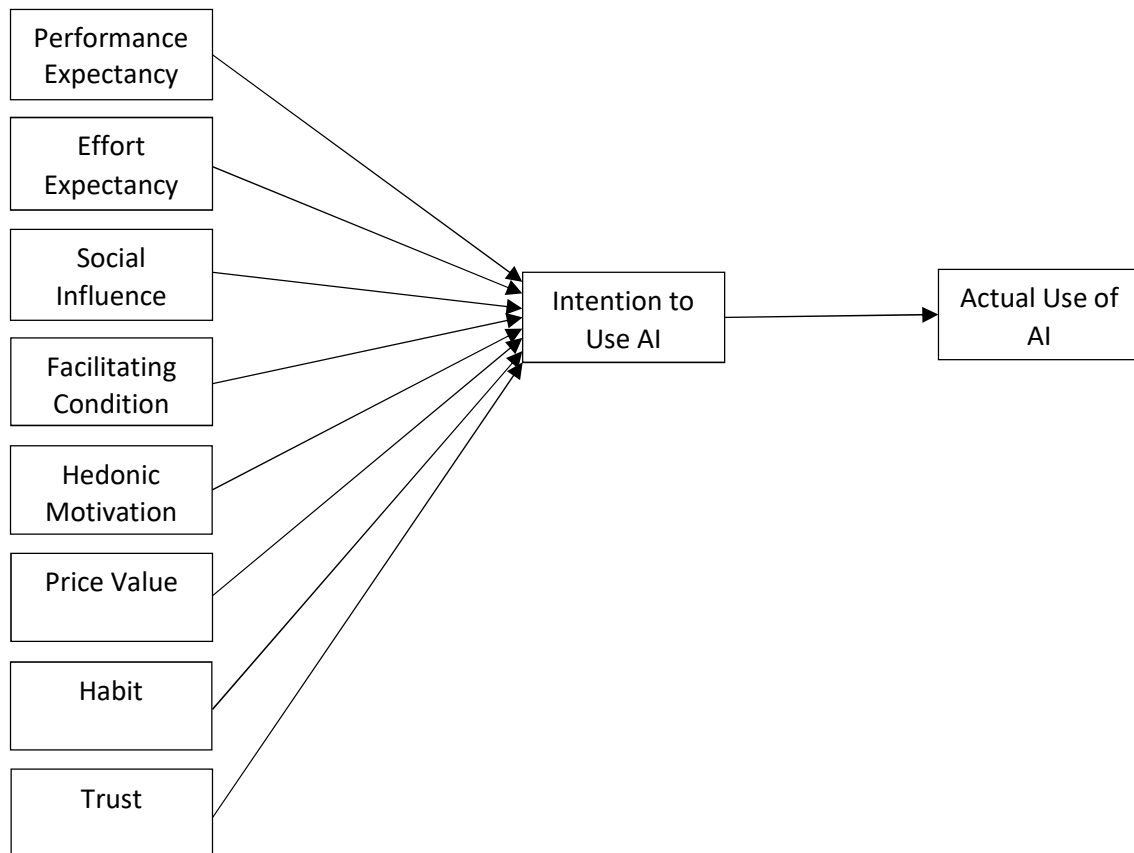
In developing countries, Trust in new technologies is considered to be a barrier (Malik 2020). A study from the Association of Arab Advisors based on a survey found that businesses in Jordan have the infrastructure to adopt AI systems. However, the study states that Jordanian companies require more IT awareness to restructure their functions and practices more efficiently. On this basis, in the Jordanian telecom industry, IT literacy and confidence are a big topic. Many businesses need to become conscious of the effects of AI adoption and why investment in this form of technology is required. Simultaneously, the Government of Jordan recently authorized an AI national committee to track the technology implementation into various government economic sectors. This committee will make sure to stay in touch with the needed innovations and developments of the Industry 4.0 revolution. Moreover, regulations and rules related to the budget investment will be allocated to support businesses to adopt AI in Jordan, especially in the public sector (Times, 2019).

The constructions in UTAUT2 are meant to affect the conduct of AI facilities. UTAUT2 does not, though, answer trust-related problems. It does not clarify why separate configurations for the same app configuration may be introduced (Tsiknakis and Kouroubali, 2009). Therefore, combining all these independent variables was assumed to reflect better the factors that will decide how AI applications are expected. The trust in utilizing this modern technology is a significant variable in the current study sense, and several researchers have demonstrated Trust in their studies.

The definition of Trust is the psychological beliefs of a trustworthy individual that they are not opportunistic and ready to be susceptible to other parties' behaviour. For some time, a clear determinant of technology adoption has often existed in the field of study (Pavlou, 2003). However, after an invention on the Internet that led to the rise of e-business and accelerated technological growth, the attention of technology adoption was increased. Although many ideas linked to trust have been introduced, prior research on well-supported trust conceptualization in a technology acceptance context has been addressed (Mayer, Davis and Schoorman, 1995). The literature used the corporate Trust paradigm to explain the understanding of confidentiality in the company's acts and encourage the trusted knowledge of the ages' technological preparations described three aspects of religion, sincerity, abilities, and solidarity (McCloskey, 2011). Integrity is related to trustworthiness about the trustee's conformity

with the values generally agreed, that is, the trustee would be truthful, ethically maintain his commitments. Competence is the presumption that the trustee group has the ability and the qualifications to meet its expectations (Mayer, Davis and Schoorman, 1995). The advantages are the degree to which the trustee's perceptions are thought to benefit the trustee. They are usually viewed as goodwill. In addition to its correlation with the user's intent to implement modern technologies, it is preserved that trust in new technology or invention comparatively favourably has to do with its perceived. This presumption is premised on the trust as a personal guarantee that the trustee's faith in device effectiveness and anticipation of success increases. Finally, it appears, according to the literature as mentioned earlier, that the Trust may influence the degree of acceptance as an independent component, which is why this suggested structure has been established to provide a clearer interpretation of the prior acceptance factors (Figure 2).

## 5. Suggested Study Framework



**Figure 2.** The proposed research framework (Authors)

UTAUT2 has used several Information Systems (IS) studies that examined the background of new technology adoption and deployment by individuals (Oliveira and Martins, 2010). In summary, a significant number of experiments have employed UTAUT and have shown a robust explanatory uncertainty. Therefore, using the UTAUT2 model with its developments should make a massive difference in the certainty issues.

Also, two moderating factors, age, and gender are omitted from the model adopted. The reason is that these systems programs are similarly accessible for women and men. Everyone has access to technology since the age variable, and the voluntary dimension have both been removed. Besides, the suggested system also employees' expertise as a moderating element in moderating the usage of new system facilities (Al-Shafi and Weerakkody, 2010). (Venkatesh *et al.*, 2003) they were proposed that enhanced experience could reduce the effect on the EE, SI, and (H) execution. This analysis presupposes that familiarity with the Jordanian Telecom sector AI adaptation in recruitment processes might have a moderating impact (Table.1).

**Table 1.** Studies of The Research Model's Constructs

	Factor	Previous Studies
Performance expectancy	(Venkatesh <i>et al.</i> , 2012)	
Effort expectancy	(Venkatesh <i>et al.</i> , 2012)	
Behaviour Intention (BI)	(Friedrich and Hron, 2010)	
Facilitating Conditions (FC)	(Venkatesh <i>et al.</i> , 2003)	
Social influence	(Jong and Wang, 2009)	
Actual use	(Venkatesh <i>et al.</i> , 2012)	
Habit (HT)	(Venkatesh and Chan and Thong, 2012)	
Trust	(Alshehri <i>et al.</i> , 2012; Lian, 2015)	

## 6. Methodology

In this study, 19 relevant studies from different publications were retrieved to analyze the research in-depth concerning the use of acceptance models. These related papers have been analyzed and discussed. Therefore, this study should be viewed as a qualitative review of the material to propose an expanded UTAUT2 model. Moreover, while there are various studies based on different acceptance models, this study concentrated only on studies based on the UTAUT2 model. As a result, the current study may be seen as a subgroup of related studies, which seek to add value compared to a general analysis of the acceptance models for research. Also, further studies will be conducted following this analysis to test the expanded model using a quantitative approach.

## 7. Results

In evaluating technology usage and behavior recognition, UTAUT2 has more excellent stability than other theoretical models. A consistent model is used in a variety of technology tests. It was tested primarily in developed countries but not so thoroughly in developing countries. Therefore, the purpose of this study is to follow a UTAUT2 structure to explore whether the Telecom sector in Jordan would accept AI in Jordan from the business point of view. However, proposing this model for the telecommunication sector will have more opportunities and chances. An extended model was proposed considering the Trust variable to help explain the adoption of AI in Jordan's telecommunication sector. In other words, UTAUT1 and UTAUT2 models didn't focus on the Trust variable among their theories, especially in the telecommunication sector of developing countries where the Trust in new technologies is a big challenge. As a result, the Trust variable in this study will give us a deep understanding of the process of new technologies acceptance.

## 8. Conclusion

This research is being considered as a standing base of more studies that will be carried out in this field. This paper has proposed a deeper understanding of the main factor that affects the acceptance of AI in the telecommunication sector in Jordan. Researchers can build many studies to explore more aspects related to the main ones. For example, the Trust variable can get deeper better to extend the impact of security and privacy in this field. Moreover, this research can explore the moderating variable that may affect the acceptance of AI in the telecommunication sector, such as education, experience, and employee training.

The result of the research chain that will be carried out due to this study will give us a big picture of the challenges and opportunities in adopting AI in the telecommunication sector in Jordan, which may be a reference for many researchers to conduct their research under the umbrella of this study in different sectors or geographical locations and cultures.



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