Main Factors Affecting Successful Adoption of Management Information System in Yemen Mobile Phone Enterprises

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ABSTRACT

Management Information System play significant role in the management, administration as well as operation of an organization, therefore the organizations consider it as major tool that can lead to development and continuity. Mobile phone one of the most sectors, which is aware of the usefulness of applying management information system. The objective of study is focusing on the successful adoption of management information system in mobile phone enterprises in Yemen. Thus, this study aims to reveal the main factors, which can affect successful adoption of management information systems. The field study of this research apply on mobile phone enterprises in Yemen. Through a literature review, the most common theories and models in the areas of information systems success and technology acceptance related to the study mentioned. We proposed a conceptual model based on theories in the field of technology acceptance and adoption of management information systems. The proposed study framework includes the main influencing factors: attitude toward using system, system quality, information quality, computer anxiety, job relevance and management support, an attempt to reveal the extent of the influence of these factors to overcome the restrictions that prevent the utilization of information systems, which in turn leads to improving the performance of these enterprises.

Keywords: Management information systems, IS success model, Conceptual model, Mobile phone enterprises

INTRODUCTION

The way people live their daily lives has been greatly impact by the advancement of technology in recent decades. It is difficult to imagine a house or place of business where technology has not had an impact. Positive views such as increased convenience, productivity, and efficiency are often associated with technology. However, there is a chance that the adoption of these technologies will not proceed smoothly or as expected. Scholars have been encouraged to do research in this area because one of the main obstacles to societal advancement is the implementation of technology (Malik, 2021). Various types of organizations be they corporate or otherwise can benefit from the operational, managerial, and strategic support offered by information technology. Information systems are essential for processing data used in daily business activities and continuously generated. These systems produce various types of data that are valuable for internal and external purposes, supporting tasks such as transactional processes, industrial control procedures, and employee performance management (Alrahaifa, 2017).

Management information systems play a strategic role in an organization's operations by providing management with accurate information at the appropriate moment to help with a range of planning,

organizing, directing, and decision-making duties (Al-Najjar, 2010). Managers cannot ignore management information systems because of their vital role in contemporary businesses. Managers' judgments, strategies, and staff management directly impacted by the systems of today. Additionally, they have a growing impact on the where, when, and methods of production. Technical decision-makers are therefore unreliable when it comes to system responsibility (Laudon & Laudon, 2006). Organizations using management information systems to guarantee accurate and up-to-date data is accessible when needed. Most businesses use computers to record every detail of their business dealings because it is difficult to foresee what information will be required down the road. When a query or regular business report needed, this data can be obtain and updated to provide the necessary information (Belle et al., 2001).

The integration of management information systems is already firmly ingrained in our day-to-day business operations, much like accounting, operations management, finance, marketing, and other key business functions. Successful businesses depend heavily on technology and management information systems; in fact, some would say that these are necessities for doing business. As such, they are an essential area of study for anyone involved in business administration and management. This is the reason that most business majors offer a course on management information systems. All kinds of enterprises can benefit from management information systems. by improving management decision-making, workgroup collaboration, and the efficacy and efficiency of their business operations, which strengthens their competitive positions in changing marketplaces (Al-Mamary, 2016).

In the context of Yemeni mobile companies, management information systems viewed as crucial for improving an organization's overall performance and operational capabilities by effectively harnessing information technology. Prior research in Yemen has highlighted challenges related to transitioning from manual operations to electronic and automated processes, influencing both individual and organizational performance. Several departments have endeavored to automate their tasks, utilizing various management information systems, including accounting information systems, customer relationship systems, human resource information systems, and billing systems. Hence, this study aims to identify the key factors that hinder the adoption of management information systems. This inquiry leads to the following research question:

Q1. What are the main factors influencing the successful adoption of management information systems in Yemen mobile phones enterprises?

In the realm of management information system adoption, numerous studies have identified various factors that can affect successful adoption. This study aims to reveal the factors influencing MIS adoption in the specific context of Yemen.

LITERATURE REVIEW

The Theory of Reasoned Action (TRA), Technological Acceptance Model (TAM), Theory of planned behaviour (TPB), IS Success Model, Personal Computing Acceptance Model and Computer Usage Model are the most common models in the fields of information systems success and technology acceptance. Depending on the context of studies, these models and frameworks have been adjust or extended; they are still useful today in several studies.

Theory of Reasoned Action (TRA)

The theory of reasoned action (TRA) has been effective in explaining and forecasting user behavior across a wide range of fields (Davis, Bagozzi, & Warshaw, 1989). The theory of reasoned action was develop by Martin Fishbein in 1967 and further developed by him and Icek Ajzen in 1975. The theory of reasoned action essentially provides insights about an individual's behavior by describing the relationships among

intention, attitude, and subjective norms (Ajzen & Fishbein, 1980). As show in **Figure 1**:
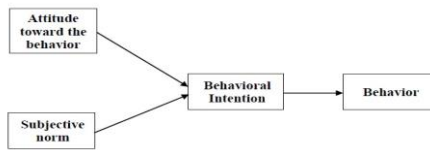

Figure 1: Theory of Reasoned Action

Source: Ajzen and Fishbein (1980)

The three elements of the TRA paradigm are behavioral intention, attitude toward behavior, and subjective norms. The most significant predictor of someone's actual behavior, according to TRA, it is the behavioral intention (Fishbein & Ajzen, 1975). To have a better understanding of behavioral intention, it is necessary to explore additional variables, such as attitudes toward conduct and subjective norms. Whether someone feels positively or adversely about partaking in the target behavior is what known as his attitude toward it. This mindset is shaped by past beliefs, evaluations, and outcomes. A person will have more positive attitude and vice versa, based on the results they anticipate from a specific behavior (Ajzen & Fishbein, 1980).

Subjective norms are positively correlate with normative beliefs and the individual's motivation to uphold the normative beliefs. Subjective norms are the person's assessment of what most people in his life believe he should or should not do. In other words, an individual acquires positive subjective norms and vice versa the more motivated they are to conform to the normative views. As a result, behavioral intention that based on subjective norms and attitude can used to define TRA theory (Binyamin, 2019). Despite the TRA theory's widespread use by many scholars, it has drawn criticism for being unable to accurate foresee circumstances in which people lack volitional control (Lai, 2017; Chuttur, 2009). In 1991, TRA theory extended by Ajzen, who proposed the theory of planned behavior to solve TRA model drawbacks (Alkhoori, 2021).

Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) was first develop by Ajzen in 1985, although it was not finished until 1991. TPB developed to reduce the limitations of TRA (Ajzen, 1991). The TPB is a variation of the TRA since it retains the essential components and the behavioral goal of carrying out particular behaviors. Another way that TPB and TRA diverge is that the former incorporates traits associated with perceived behavioral control (Malik, 2021). In certain scenarios where participants have little to no volitional control, TRA has not been able to accurate predict participant behavior (Davis, 1989). In order to get over these limitations, Icek Ajzen's theory of planned behavior was extend to include a third component that influences behavioral intention: perceived behavioral control (Binyamin, 2019). Theory of planned behavior depicted in **Figure 2**:
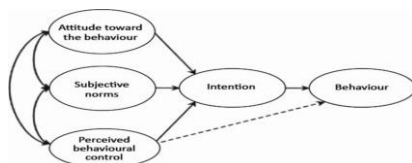

Figure 2: Theory of Planned Behavior

Source: Ajzen (1991)

TPB takes into account that a person may not always have complete choice over whether or not to do a specific action, in contrast to TRA. A person's perception determines whether an activity is easy or difficult

to carry out (Ajzen, 1991). As a result, when perceived behavioral control is low, an individual's behavioral intention will not be strong, even if they have a favorable attitude towards taking action and subjective norms (2019, Binyamin).

Technology Acceptance Model (TAM)

The "TAM" Model, a highly prevalent framework for forecasting how individuals will respond to technology and information systems, has employed in numerous research endeavors. Consequently, it stands as one of the most broadly embraced theories for comprehending the adoption of technology. As outlined by Davis in 1986, the Technology Acceptance Model (TAM) comprises several components, including external variables, perceived ease of use, perceived usefulness, attitude towards utilization, and actual system usage. As **Figure 3** depicts it:
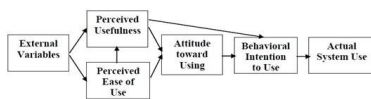

Figure 3: Technology Acceptance Model 1

Source: Davis (1989)

According to Davis (1989), a person's behavioral intention to utilize a new technology influenced by external stimuli. Perceived utility and ease of use, two fundamental components of the cognitive response branch of human psychology, form the basis of the 'TAM' (Mondego & Gide, 2022). Perceived usefulness (PU) is defined as "the level to which a person thinks that utilizing a certain system would improve his or her ability to perform at work," whereas perceived ease of use (PEOU) is defined as "the level to which a person thinks using a certain system will be effortless" (Davis, 1989).

The factors that might have an effect on users' behavior are refer to as the external variables. As they directly affect users' perceptions of a system's perceived ease of use and perceived usefulness, factors including the system's features, the processes development, and training could indirectly influence how quickly new technology is adopted (Duan 2012). Therefore, it is possible to employ the five fundamental TAM constructs (external factors, PU, PEOU, attitude, and behavioral intention) to describe how people embrace new technology. To investigate the impact of novel constructions on the user's desire to utilize the technology, various academics have been introducing additional variables into TAM. As a result, Venkatesh and Davis (2000) assumed that other variables might be included. They also noted that TAM had certain limitations in understanding the reasons why a person would regard a particular system as beneficial. TAM2 is an extension model of TAM that was create by Venkatesh and Davis in 2000 (Alkhoori, 2021). As shown in **Figure 4**.
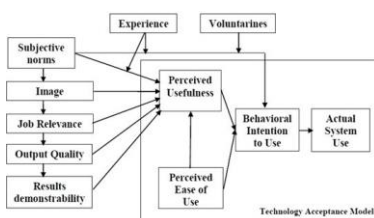

Figure 4: Technology Acceptance Model 2

Source: (Venkatesh & Davis, 2000)

This model integrates two processes: the social influence processes (Subjective Norm, Voluntariness, and

Image) and the cognitive instrumental processes (Job Relevance, Output Quality, Result Demonstrability, and Perceived Usefulness). Al-Mamary (2016), identifies two techniques are seen to be crucial for comprehending consumer acceptability. Based on TAM1 & TAM2, "Venkatesh & Bala" developed the TAM3 model in 2008, which includes four new factors: computer self-efficacy, perception of external control, computer anxiety, and computer playfulness.

Computer Usage Model

In 1995, computer usage model was propose by "Igbaria & Iivari". They are determines seven variables for system utilization, including self-efficacy, computer anxiety, perceived usefulness, perceived ease of use and system usage. It hypothesized these variables (computer experience and organizational support) will have an impact on (self-efficacy and computer anxiety). The model focuses on organizational support and human factors before having an impact on system factors and system usage. (Al-Mamary et al., 2015).
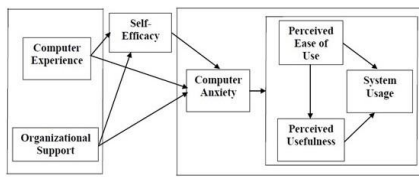

Figure 5: Computer Usage Model

Source: (Igbaria & Iivari. 1995)

Personal Computing Acceptance Model

In 1997, Igbaria introduced the Personal Computing Acceptance Model as a means to gauge the acceptance of computer systems. This model primarily focuses on two factors: perceived ease of use and perceived usefulness, which are believe to direct influence the acceptance of personal computing in small businesses. According to the model, these two variables mediate the impact of extra- and intra-organizational factors on the acceptance of personal computing. The accompanying graphic shows how various intra- and extra-organizational factors are anticipate to an indirect impact on the acceptance of personal computers through their influence on perceived utility and usability (Al-Mamary et al., 2015). **Figure 6** depicts Personal Computing Acceptance Model.
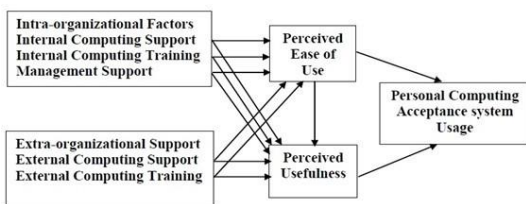

Figure 6: Personal Computing Acceptance Model

Source: (Igbaria, et al. 1997)

IS Success Model

Information System success model (1992) presented is typically intended to examine the success of any IS by thoroughly evaluating the literature. They conclude six dimension (system quality, information quality, use, user satisfaction, individual impact, and organizational impact) that make up an IS's success are interrelated and complex. The IS's success model takes into account inputs like system quality and information quality to fit users into specific systems, while outputs like personal and organizational impacts

are used to assess the information system's success criteria. So, in accordance with this methodology, organizational achievements determined by personal advantages. (Çelik & Ayaz, 2021).
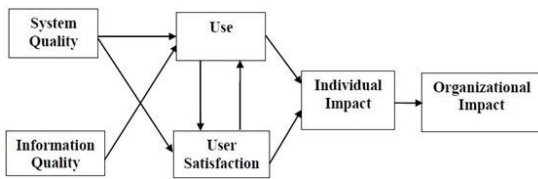

Figure 7: IS Success Model

Source: (Delone & Mclean. 1992)

In 2003, Delone and McLean introduced a revised IS success model. They incorporated service quality as a pivotal component. However, they opted to replace the examination of attitude with the concept of intention to use in certain contexts. Ultimately, they consolidated the organizational and individual influences into a single dimension referred to as "net benefits". As shown in **Figure 8**:
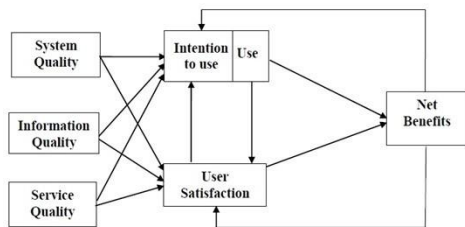

Figure 8: Updated IS Success Model

Source: (Delone & Mclean. 2003)

In summary, through the previous theories, it is clear that each theory includes many factors. Some of these factors shared to more than one theory, while others differ according to the context of each study. The Theory of Reasoned Action (TRA), Technological Acceptance Model (TAM), Theory of planned behaviour (TPB), IS Success Model, Personal Computing Acceptance Model and Computer Usage Model have been adopted in this study. Based on these theories, study model includes factors that related to the problem statement which supposed have significant effect on the adoption of management information system. The literature review on MIS adoption in the context of Yemen specified key factors that could affect MIS utilization by individuals. The study refers to a study that discovered a significant relationship between these factors and the adoptions of MIS. These factors were attitudes towards using MIS, MIS quality, information quality, computer anxiety, job relevance and top management support.

Factors Affecting Adoption of Management Information System in Yemen Mobile Phone Enterprises

Attitudes towards Using MIS

Attitude can be fully defined as the strong propensity to genuinely react favorably or unfavorably solely to a significant event. The acceptance or rejection of an information system by a user is refer to as their attitude toward using that system. The trustworthiness of the user has an impact on it; therefore, user will gladly adopt the system if they have a high level of faith in information systems. When it comes to how people use technology at work, TAM defines attitude toward usage as a person's attitude toward acceptance or rejection (Al-Mamary, 2022). According to (Davis, 1989; Venkatesh & Davis, 2000; Georgiadis, 2019), they discovered that attitude toward using the system has a significantly positive relationship with an individual's adoption of management information system.

System Quality

System quality is one of the system features that has examined the most. In terms of the measurements of the information processing system itself, it mostly refers to how well hardware and software interact (DeLone & McLean, 1992). System quality might be refer to as the system a company use to control the quality of its services or products (Popoola et al., 2014). The system flexibility and reliability, its ease of use and learning are among the criteria used to evaluate its level of quality. Other criteria include the system's sophistication, intuitiveness, response times, (Petter et al., 2008). Authors such as Delone & McLean, (1992), Hussien, (2009), Al-Mamary et al., (2019) and Georgiadis (2019); agree that system quality has a significantly positive relationship with an individual's adoption of management information system.

Information Quality

Information quality is defined as the desirable attribute that measures the output of a management information system. Information quality refers to the standard of an information system's content and is the primary variable influencing the effectiveness of an information system (Alla & Faryadi, 2013). Information quality indicates the efficiency of the outputs information system produces that can take the shape of reports or web screens — referred to as information quality. Accuracy, completeness, currency, and consistency are the four aspects of information quality used to characterize it. (Wei, 2012). Accuracy, understandability, relevance, conciseness, completeness, timeliness, and usability are the items for information quality measurement (Petter et al., 2008). The results of studies by Delone and McLean (1992), Hussien (2009), Al-Mamary et al. (2019), and Georgiadis (2019); show a strong positive relationship between information quality and individuals' adoption of management information system.

Computer Anxiety

Computer anxiety is considered the "degree to which a person gets nervous or even afraid while considering using computers" '(Venkatesh & Bala, 2008). It is a type of state anxiety and illogical emotional distress experienced by someone who uses or considers computer technology due to a previous experience (Igbaria & Iivari, 1995). According to Igbaria and Iivari (1995), Venkatesh and Davis (2000), and Venkatesh and Bala (2008), there is a significant adverse correlation between computer anxiety and an individual's acceptance of management information systems.

Job Relevance

Job relevance is a crucial factor in the matching process that helps potential users assess how using a certain system affects their job (Snicker, 2013). Job relevance is defined as a person's impression of the extent to which the target system applies to their particular employment. In other words, the significance of the set of tasks that the system can support within a person's employment determines the relevance of the job (Venkatesh & Davis, 2000). According to Venkatesh and Davis (2000), Venkatesh and Bala (2008), Hussien (2009), and Alkhoori (2021), job relevance has a significantly positive relationship with an individual's adoption of management information systems.

Management Support

The ability of management support to provide adequate resource allocation and function as a change agent to foster an environment more favorable to the achievement of IS, and its lack is seen as a major impediment to the efficient use of information technology (Igbaria et al., 1997). Top management support indicates "the level of top management involvement and understanding of the significance of the IS function" (Kamoun-Chouk, S. 2014). Many operational and strategic IT management operations are made

possible by top management support, including project management, negotiations, and IS planning (Hussien, 2009). Based on the studies by Igbaria et al. (1997), Hussien (2009), Al-Mamary et al. (2019), and Alkhoori (2021), they identified a significant correlation between top management support and an individual's adoption of management information systems.

CONCEPTUAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

The preceding discussion has confirmed that the factors most extensively studied in the successful adoption of Management Information Systems (MIS) include attitudes towards using MIS, system quality, information quality, computer anxiety, job relevance, and management support. Considering the above review of relevant literature, examining the influence of the selected factors on the successful adoption of MIS in mobile phone enterprises in Yemen is relevant. Thus, we propose the following hypotheses:

H1: *There is positive significant relationship between attitude towards using system and Adoption of MIS.*

H2: *There is positive significant relationship between system quality and Adoption of MIS.*

H3: *There is positive significant relationship between information quality and Adoption of MIS.*

H4: *There is negative significant relationship between computer anxiety and Adoption of MIS.*

H5: *There is positive significant relationship between job relevance and Adoption of MIS.*

H6: *There is positive significant relationship between management support and Adoption of MIS.*

The proposed model includes the following factors: attitudes towards using MIS, system quality, information quality, computer anxiety, job relevance, management support, and individual's MIS adoption. The proposed framework shown in **Figure 9**
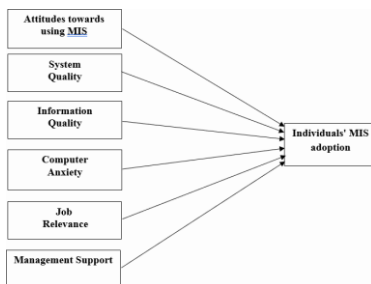

Figure 9: Proposed Framework

The assumption regarding the influence of technological factors (system quality, information quality) on the adoption of management information systems was based on the IS success model and supported by the findings of Al-Mamary (2019) and Georgiadis (2019), who discovered a positive relationship between MIS adoption and system and information quality. On the other hand, the adoption of MIS was impacted by management support, job relevance, and computer anxiety (Alkhoori, 2021; Venkatesh & Balal, 2008; Igbaria & Iivari, 1995). The degree to which these variables influence the adoption of MIS will be demonstrated when the study model is empirically tested.

CONCLUSION AND FUTURE STUDY DIRECTIONS

In this study, we reviewed the literature on MIS adoption in the mobile phone sector in Yemen. We developed a conceptual framework that considers the main factors that may influence MIS Adoption

amongst the system users. The proposed conceptual framework comprises six independent variables: attitudes towards using MIS, MIS quality, information quality, computer anxiety, job relevance and top management support. Through this model, mobile phone enterprises can enhance utilization and acceptance of MIS. Thus, the proposed model contributes to the enhancement of the quality of MIS adoption. In the upcoming years, the rate of MIS adoption in Yemen companies will be amplify and improve not only in the telecommunication sector, but also in several sectors. Although academics examined the adoption of MIS in general, only a few focused on factors influencing the adoption of MIS in the Mobile phone or telecommunication sector in Yemen. Therefore, empirical investigations on the factors affecting the successful adoption of MIS in Yemen will support fresh insights for both domestic and global studies.

Owing to its exploratory design, this study provides some insights into the variables that have examined in other studies. It is still unclear how exactly certain aspects influence the Yemen mobile phone enterprises. To further understand the relationship between the factors, more studies using mediator factors are required. The impact of moderators could potentially be examine in future studies, such as actual system use, perceived usefulness. The successful adoption of MIS in Yemen may vary depending on these factors. The proposed conceptual model could be consider as an input to Yemen telecommunication companies concern with advancement of users and system processes. The conceptual model will empirically tested in the subsequent phase of this study.

FIGURES

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