

The Attitude of Jordanian Managers towards Wireless Device to Facilitate Communication between Project Team

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ABSTRACT

The technology acceptance model (TAM) has been used in much of the research into technology diffusion conducted in the United States and other developed Western countries. There is, however, no empirical evidence that information-technology acceptance models established in developed countries can apply equally well to less-developed countries without some modification to account for the different context. This article questions the appropriateness of the traditional TAM model for the study of the attitude of managers towards Wireless device to facilitate communication between project team in a Jordan. It discusses the literature and presents the preliminary results of an investigation into the penetration of wireless device to facilitate communication between project team in Jordan, a strategic developing country of the Middle East. The continuously growing number of mobile users demonstrates that more and more users seek to benefit from the freedom afforded without the need for cables, time and place. The research results are used to suggest and evaluate modifications to the TAM to make it more relevant for research on technological acceptance in less-developed and developing countries.

Perception of usefulness and ease of use are addressed in this study as factors that can play an important role together with the managers' attitudes and the beliefs in the process of adoption of Wireless device to facilitate communication between project team in a Jordan. The paper concerns research questions, which concern the consumer behaviour in the context of Wireless device. It describes an empirical study aimed to quantify and understand the usability factors that will drive the development of Wireless device services. The results demonstrated that the attitudes managers' toward the use of wireless device to facilitate communication between project team in Jordan are positive and the inferred that there is an effect of the managers' perceived usefulness and perceived ease of use of wireless device on their attitudes toward using wireless device to facilitate communication between project team. A review of the literature and an exploratory study in the Jordanian context suggests that the technology acceptance model, which is the basis of this research, may be useful although it may need to be extended to include specific issues of culture and trust on the customer side and more basic elements of quality in technology usability and service. Finally, this paper concludes with a summary, implications and limitations of the study results, presented and discussed in the more general terms.

INTRODUCTION

The wireless device to Facilitate Communication between project team is a new technology, which has recently spread throughout the world. Its adoption is a necessity for all

countries that want to be part of the global economy. However, the use of wireless device within organizations in the Middle East seems to be largely ineffective and consumers there are typically late adopters of such technology. This is a particularly important issue for the organizations where developing countries are trying to cope with technologies that are routinely used in the developed countries to enhance and improve the quality of their basic services.

The Technology Acceptance Model (TAM) has been the foundation of much research into the diffusion of technologies but this research has mainly been conducted in developed countries (Davis 1985). It should be noted that, in these developed countries, there has been a long history of the use of advanced technologies, which are, in the main, products created in, and for, those countries. It is open to question whether this model is adequate for research into the adoption of new technologies, such as those required for wireless device, in the circumstances that exists in less-developed and developing countries, such as those in the Middle East.

This paper will acknowledge the results of studies, which suggest that patterns of information technology adoption and use in developed countries may not be totally applicable to less-developed countries (LDC), although no hard evidence presently exists to support this. Without empirical verification it becomes unclear whether information technology acceptance models, confirmed in developed countries, will apply equally well to less-developed countries without some modification to account for the different context. A

suitable model, which does this, would have relevance across the broad field of information technology applications and should also have a high probability of success in transfers of various technologies across economic and cultural boundaries.

Wherever they are; at their homes, behind their offices, people, just by using today's major technology, are able to collect the information in question only by a mere single click.

They not only send any piece of information in minutes, but also receive this information from any part of the world; a thing that saves time, money as well as effort.

A team is defined as "an interdependent collection of individuals who work together towards a common goal and who share responsibility for specific outcomes of their organisations" (Sundstrom, E., et al., 1990). An additional requirement to the original definition is that "the team is identified as such by those within and outside of the team" (West, B., et al., 1998). As project teams work on specific projects, the first requirement is usually met. In the early stages of a project, the project team may not be recognised as a team, leading to some confusion within the organisation. The central characteristic of project teams in modern organisations is the autonomy and flexibility availed in the process or method undertaken to meet their goals.

In the last few years the area of wireless device has emerged as a new communication networks and become one of the hottest topics today's. Generally, communication is the

medium through which team members share the information required for successful project and to meet project goals. The term "wireless" has become a generic and all-encompassing word used to describe communications in which electromagnetic waves or RF (rather than some form of wire) carry a signal over part or the entire communication path. Common examples of wireless equipment in use today include(Cellular telephones and pagers: provide connectivity for portable and mobile applications, both personal and business).

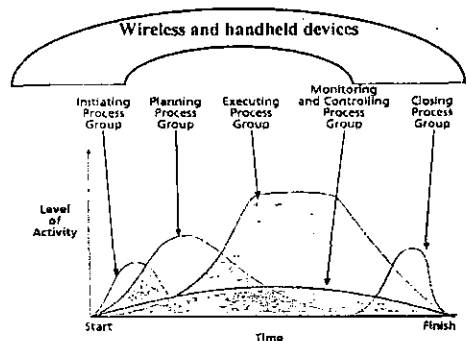
Mobile commerce is creating a whole new meaning for mobile phones and services, as a device enabling secure transactions such as:

- Mobile financial application:
 - Mobile banking.
 - Wireless electronic payment systems.
 - Micro payments.
 - Wireless wallets.
 - Bill payment.
- Mobile shopping, advertising and content-providing:
 - Shopping from wireless devices.
 - Targeted advertising and mobile portals.
- Mobile intrabusiness and enterprise application:
 - Support of mobile employees.
 - Customer support.
- Mobile-ticketing, Mobile-learning, Mobile-University (getting student marks through mobile devices...etc).

Wireless communication is used as a term for transmission of information from one place to another without using cables. This may be one-way communication as in broadcasting systems (such as radio and TV), or two-way communication (e.g. mobile phones).

Wireless networking is used to meet many needs. Perhaps the most common use is to connect laptop users who travel from location to location. Another common use is for mobile networks that connect via satellite. A wireless transmission method is a logical choice to network a LAN segment that must frequently change locations.

It is the project manager's (The leader of the project team, who work with the other people involved in the project to meet project goals) duty to balance all the constraints that faces the project, one of the most important constraints is time and to gain this goal project managers must be aware of many things one of them is to increase communication between the team of the project for performing project activities from any where and time.



Source: Information Technology Project Management, fourth Edition.

Joan Raymond (2001) discussed online shopping and stated that poor designed websites and user interfaces were the primary reason that made 30% of people turn away from online shopping after their first attempt. While in real life, you would simply ask for help from an assistant, online help is far more difficult to attain, and usually can only be performed through e-mail or an actual phone call, which makes the actual process agonizingly slow. Websites that provided audio or visual aids to the buying process were far more successful than those that did not.

According to Forrester Research, by 2004, 219 million users will access the Internet via mobile Phone. The use of mobile phones for the implementation of electronic business Transactions is additionally boosted by increasingly new technologies, such as Wireless Application Protocol (WAP) and Bluetooth. Technological Developments are announced daily.

Technology Acceptance Model (TAM) is a well-respected model of information technology adoption and use. It has been tailored to explain computer usage and it is an appropriate model for studying information technology diffusion in less-developed countries. As it is true with most information technology adoption and use models, TAM has not been studied outside the industrialized world; in fact, it has only been studied in two countries outside of North America (Straub, 1994; Straub, Keil, & Brenner, 1997). However, within the industrialized world, it has proven to be applicable across a wide variety of information technology applications (see Table 1 for examples). Do

explanations for the Technology Acceptance Model? , which originate in the developed world? , also apply to developing countries and cultures? In the technologically developed West, information technology adoption (TAM) and use are faced by barriers such as lack of "top management support," poor quality IS design and inadequately "motivated and capable" users (Kwon and Zmud, 1987, p. 228). In the developing world, the same barriers appear to be often undefeatable (Danowitz, et al., 1995; Knight, 1993; Mahmood, et al., 1995; Nidumolu and Goodman, 1993).

Most of the problems found in the Arab world with regard to the culture are attributed to a lack of national infrastructure (Odedra, et al., 1993), capital resources (Goodman and Press, 1995), or government policies set in place to prevent technology transfer (Goodman and Green, 1992). Actually, there are reports of countries where sufficient resources and government support exist. Nevertheless, technology has failed to transfer effectively (Atiyyah, 1989; Goodman and Green, 1992; Ibrahim, 1985).

The need to understand how and why technology has or has not been adopted for knowledge work in less-developed countries is important for managers and providers alike. In the technologically developed world, IT adoption is faced by barriers such as: the lack of top management support, poor quality IS design and inadequately motivated and capable users (Kwon & Zmud, 1987). In the developing world, the same barriers appear to be often impenetrable

(Danowitz, et al., 1995; Knight, 1993; Mahmood, et al., 1995; Nidumolu & Goodman, 1993). In addition, problems found in the Arab world are attributed to a lack of national infrastructure (Odedra, et al., 1993), capital resources (Goodman & Press, 1995), or government policies set in place to prevent technology transfer (Goodman & Green, 1992). Although there are isolated reports of countries where sufficient resources and government support exist, technology has failed to transfer effectively (Atiyah, 1989; Goodman & Green, 1992; Ibrahim, 1985).

Arab societies represent one of the most complex cultural and social systems in the world. One descriptive analysis of the region has shown that there is a tremendous variation in the use of IT (Goodman & Green, 1992). Egypt, for example, was noticed to have the largest and most internationally oriented computer system in the area, with IT widely used in most governmental agencies and non-governmental organizations. In contrast, most of the 500 million citizens of sub-Saharan Africa have no access to a reliable telephone service or computers (Odedra, et al., 1993). Jordan has a reasonable use of computers in public and private fields, with a major effort to maintain extensive cultural and archaeological archives. Although computers have been viewed in Saudi Arabia as signs of modernization, there is widespread incompatibility between systems (Atiyah, 1989). While the uses of IT are varied, the common tie of computer use in the region is one of limited diffusion (Goodman & Green, 1992).

In developed countries, there has been a long history of research and development into the capability and acceptability of wireless device products, which are created in, and for, those countries. Davis' (1989) Technology Acceptance Model (TAM) has been the foundation of much of the research into technology diffusion although almost all of this research has been conducted in the USA and other developed, Western countries. This paper uses the TAM model for the study of wireless device to facilitate communication between project team in a Jordan viewed as a developing country in the context of the Middle East region. It will describe and present the results of an investigation into the penetration of wireless device to facilitate communication between project team in a Jordan. The results of this investigation will be presented and discussed to suggest directions for future research.

THE PROBLEM

It is well known that organizations and individuals in Jordan are late adopters of wireless device this is not unique to Jordan but many developing countries have the same problem.

1. Data and network security in addition to privacy problems.
2. Lack of Government policies, regulations and wireless device laws and legislations to protect workers and to make their connection secure.
3. Broken and Slow wireless connections via wireless devices.
4. People are afraid to use wireless device and purchase through it and manage their business, because they think that any

mistake or error could mean loss of money.

THE PURPOSE OF THE STUDY IS TO:

- Investigate and describe the use of information system by using a wireless device to achieve goals in the project.
- Satisfy the people's needs by creating an effective model of wireless information system to increase competitive capabilities.
- Qualify the current state of consumers' beliefs and attitudes toward the adoption and use of a new technology such as wireless device in Jordan.
- Identify the problems that organizations and consumers encounter while adopting or using wireless devices.

IMPORTANCE OF THE STUDY

- The acceptance of wireless devices is a new topic in Jordan and so it is worthwhile to conduct this study whose results could be used to improve the wireless devices sector, and to enhance future quality and services in Jordan.
- Undertaking rigorous investigation could enrich the research centers in Jordan with a model for new studies that could receive a high level of acceptance from research organizations that are looking for guidance in creativity and innovation.
- Wireless devices have been widely studied in developed

countries. A few studies have been done in developing countries, but no investigation has been done in Jordan...

- The literature shows that there is a problem in using the wireless devices in the Middle East. There is lack of experience both within organizations and among individuals. Most would be users lack the necessary skills and experience.

PROBLEM DEFINITION

It is well known that *managers* as any person in Jordan are late adopters of wireless and its applications with regard to wireless devices. This is not unique to Jordan and too many other developing countries. Some possible issues found in a preliminary investigation (Al-Sukkar & Hasan 2005) are:

- Although many managers perceive usefulness and ease of use as benefits of the wireless, they have not transferred this attitude toward the application of the wireless devices. Many organizations managers are reluctant to use wireless devices. Some managers simply don't like "the technology" at all, and others fear the computer will garble their works.
- Lack of organizations services through the web due to the limited number of organizations using the wireless devices.
- Data and network security, in addition to privacy problems.
- Lack and limitation of Government policies, regulations and wireless devices laws and legislation to

protect workers and to make the wireless secured.

- Lack of Infrastructure and weak telecommunications.
- Broken and Slow wireless connections.
- Lack of wireless awareness because this service is still widely unacceptable. It is believed that managers are still not fully confident to use wire devices. Greater awareness could show them the benefits of using new systems and could encourage them to adopt devices transactions.
- Managers are afraid to use wireless and works through wireless because they think that any mistake or error could mean loss.
- Connection Costs and high costs of building and managing sites.

THE TECHNOLOGY ACCEPTANCE MODEL

The Technology Acceptance Model, as shown in Figure 1, is a specific adaptation, to the study of computer software usage, of the Theory of Reasoned Action (TRA), depicted in Figure 2. The two important variables in TAM (Davis 1989 p. 320) are:

- Perceived Ease of Use (PEU), defined as “the degree to which a person believes that using a particular system would be free of effort” and
- Perceived Usefulness (PU), defined as “the degree to which a person believes that using a particular system would enhance his or her performance”.

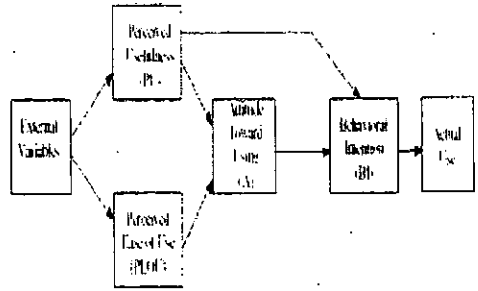


Figure 1. TAM based on Davis 1989.

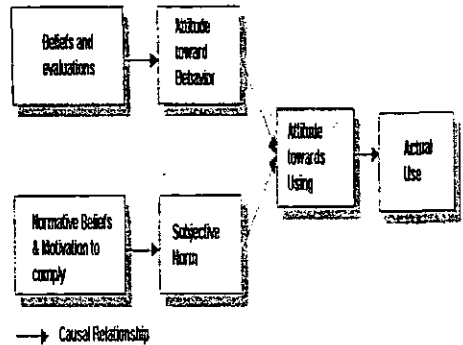


Figure 2. The Theory of Reasoned Action based on Fishbein and Ajzen 1975.

In addition to the TRA, the theory of planned behaviour (TPB) Ajzen, I., (1985) also provides a useful conceptual framework for dealing with the complexities of human social behaviour. The TRA and TPB have been widely engaged in the study of specific behaviours that relate to IT Ajzen, I. and Fishbein, M., (1980). The resulting TAM is now a well-respected model of information technology adoption and use, emerging from the TRA and TPB, which has been tailored to explain computer usage. In general, these theories (TPB, TRA, and TAM) imply that behaviour is determined by the intention to perform the behaviour. In research using the theories, actual behaviour and intention have been found to be

highly linked. Intention itself is determined by the attitude towards the behaviour. Davis' research examined the external variables, which determine or influence attitude towards tool use and identified the significance of perceived ease of use, and perceived usefulness as key independent variables of actual use of technology and hence on technology diffusion. In addition, he also showed that perceived usefulness is also indirectly influenced by perceived ease of use.

RESEARCH MODEL

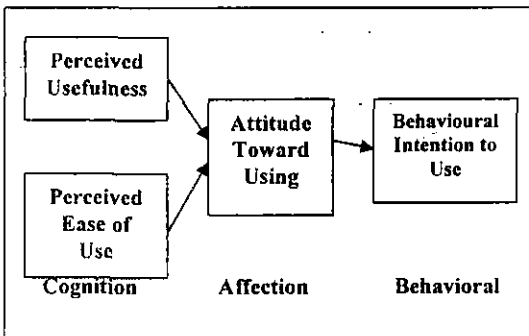


Figure 3: Adapt from (Davis 1989; Davis, Bagozzi et al. 1989; Venkatesh & Davies 1996; Al-Sukkar A. and Hasan H. (2005))

The model shown in Figure 3 forms the basis of this research and the constructs used and described here based on a large body of related research (Ajzen & Fishbein, 1975; 1979; Davies, 1993; Davies, et al, 1992; Venkatesh & Davies 1996; Triandis 1979, 1971). Attitudes are defined as a mental predisposition to act that is expressed by evaluating a particular entity with some degree of favour or disfavour. Individuals generally have attitudes that focus on objects, people or institutions. Attitudes are also attached to mental categories. Mental orientations towards concepts are generally referred to as

values. Attitudes are comprised of four components:

Cognition- Cognition influences our beliefs, theories, expectancies, cause and effect beliefs, and perceptions relative to the focal object. Their cognitive capacity has a great impact on decision making of consumers as they form feelings toward the service provided which predisposes them to purchase.

Affection- The affective component refers to our feeling with respect to the focal object such as fear, liking, or anger.

Behavioural Intentions- Behavioural intentions are our goals, aspirations, and our expected responses to the attitude object.

Evaluation- Evaluations are often considered the central component of attitudes. Evaluations consist of the imputation of some degree of goodness or badness to an attitude object. When we speak of a positive or negative attitude toward an object, we are referring to the evaluative component. Evaluations are functions of cognitive, affect and behavioural intentions of the object. It is most often the evaluation that is stored in memory, often without the corresponding cognitions and affect was responsible for its formation.

DEFINITIONS OF KEY VARIABLES

Perceived Usefulness (PU):

The degree to which a person believes that using IT would improve his/her job performance (Davis 1989, 1993; Davis et al. 1989).

Perceived Ease of Use (PEOU):

The degree to which a person believes that using an IT would be free of effort (Davies et al, 1992; Adams, Nelson & Todd, 1992; Davies, 1989 1993; Mahotra & Galletta 1999; Kwon & Chidambaram, 2000; Mao, 2002).

Attitude Toward Using (ATU):

Is a function of beliefs, positively or unfavourably towards the behaviour (Ajzen & Fishbein, 1975; Fishbein, 1979; Davies, 1993; Davies et al, 1992; Yogesh M., Dennis F. 1999; Taylor and Todd, 1995.

Behavioural Intention to Use (BI):

Behavioural intentions are our goals, aspirations, and our expected responses to the attitude object.

RESEARCH METHODOLOGY

This study takes an approach based on a quantitative analysis utilizing a survey to realise the objectives of the research. A survey would be distributed to a representative sample including potential of Jordanian managers who use wireless devices.

A survey instrument was developed which requires managers to state their level of agreement with a series of attitude statements related to the findings from the literature on TAM. Details of the development of the questionnaire and a pilot study have

been published elsewhere (Al-Sukkar & Hasan, 2005). Each degree of agreement or disagreement is given a value on a predetermined scale set of Likert items varying from 1 (Strongly disagree) to 5 (Strongly agree). The managers' ratings (e.g., 1, 2, 3, 4, and 5) reflected the strength of their attitude or belief for any particular item. Ratings for different questions were added together in order to obtain an overall or summated index of the person's standing on the attitude or belief being measured.

The sample included (388) managers who were randomly chosen from number of the commercial company in Jordan. The number of returned respondents used in the analysis was 300 (a rate of 77.3 %).

The respondents were 48% female and 52% male. The vast majority of respondents had long experience with their banking service. In addition, 59% had more than 10 years experience in using computer and more than 4 year's in using Internet. Among the respondents, the majority, 192 managers, had a bachelor degree, 33 had a college degree, 32 a masters degree, 26 a high school diploma and 17 a doctoral degree.

RESEARCH HYPOTHESES

It has been found that PU and PEOU influence the ATU (Davis et al., 1989). Adam et al. (1992) and Davis et al. (1989) reported that perceived usefulness has a strong relationship with attitudes towards use. IT, that users perceive is easier to use, and fewer complexes, will increase the likelihood of its adoption and usage (Teo et al. 1999). According to a

considerable body of research on TAM (Davis et al. 1989; Teo et al. 1999), PEOU has been shown to influence ATU (i.e., wireless device adoption) through causal ways a direct effect on attitude toward using. Numerous empirical studies have already validated the relationship between PU and user acceptance of Wireless device. Therefore, it is expected that individuals will adopt wireless device if they perceive wireless device to facilitate communication between project team would help them to attain desired performance.

Therefore, the following hypotheses were proposed:

- H1: Jordanian Managers attitudes toward using wireless device to facilitate communication between project team are negative.
- H2: Jordanian Managers perceptions of the usefulness of wireless device to facilitate communication between project team are low.
- H3: Jordanian Managers perceptions of ease of use of wireless device to facilitate communication between project team are low.
- H4: Jordanian Managers behavioural intentions to use wireless device to facilitate communication between project team are negative.
- H5: Jordanian Managers attitudes toward using wireless device to facilitate communication between project team DON'T vary according to their perceptions of usefulness of Wireless device.
- H6: Jordanian Managers attitudes toward using wireless device to facilitate communication between project team DON'T vary according to their perceptions of ease of use of Wireless device.

H7: Jordanian Managers attitudes toward using wireless device to facilitate communication between project team DON'T vary according to their perceptions of usefulness AND ease of use of wireless device (PU & PEOU).

H8: There is no causal relationship between Jordanian Managers attitudes toward using wireless device to facilitate communication between project team and their behavioural intentions to use.

RESULTS OF TESTING THE HYPOTHESES

This section of the paper presents findings on each hypothesis from the results of the survey.

Hypothesis H1

This hypothesis suggests that the managers' attitudes toward the use of wireless device to facilitate communication between project team in Jordan are negative. The hypothesis has been tested through the responses to four statements of the survey constituted in the composite index (scale) used in measuring the respondents' attitudes toward the use of wireless device to facilitate communication between Project Team. The arithmetic means for the scores of all responses on each of the four statements were calculated as four means on each statement. Table 1 shows these results:

Table 1

Means scores of Respondents' A1U of wireless device to facilitate communication Between Project Team

Scale Items	Mean
1. Using wireless device to facilitate communication between project team is a good idea	4.4333
2. I like the idea of using wireless device to facilitate communication between Project Team	4.4133
3. Using wireless device to facilitate communication between project team would be pleasant	4.2100
4. I dislike the idea of using wireless device to facilitate communication between Project Team	4.2733
GRAND MEAN	4.33

Initially, the arithmetic mean for the scores of responses on each of the four individual statements was calculated. Then the grand mean of the four scores was calculated to be 4.33. When this figure was compared with the 5- points scale, it was found that it is greater than the agreement point (+4). This means that the managers' attitudes toward the use of wireless device to facilitate communication between project team are mainly positive and so the hypothesis has been rejected.

Hypothesis H2

This hypothesis has been tested through the responses of Jordanian Managers on ten statements, which constitute the composite index used in measuring the perceived usefulness of wireless device in services provided by wireless device to facilitate communication between project team in Jordan. The arithmetic means for the ten scores summarise the responses. Table 2 shows these results.

Table 2

Means scores of responses on the usefulness of wireless device statements

(The Jordanian Managers believe that they will adopt wireless device if they perceive that wireless device to facilitate communication between project team would help them to achieve the desired performance).

Scale Items	Mean
1. Using the wireless device gives me greater control over my work.	3.5933
2. Using the wireless device improves my job performance.	3.5367
3. Wireless device enables me to accomplish tasks more quickly.	3.2867
4. Wireless device supports critical aspects of my job	3.3600
5. Using the wireless device allows me to accomplish more work than would otherwise be possible.	3.3367
6. Using the wireless device enhances my effectiveness on the job.	3.2833
7. Using the wireless device improves the quality of the work I do.	3.3367
8. Using the wireless device increases my productivity.	3.2400
9. Using the wireless device makes it easier to do my job.	3.2467
10. Overall, I find the wireless device useful in my job.	3.3433
GRAND MEAN	3.36

These means represent the respondents' evaluations of individual questions in the usefulness dimension. To determine the level of usefulness of Wireless device, as perceived by the respondents, and in turn testing the current hypothesis, the grand mean for the ten means was calculated as 3.36. When this mean was compared with the 5 point Likert scale, which was used, it was greater than the neutrality (mid) point (+3), and less than the agreement point (+4) which means that there is only some perception of

usefulness by the respondents in the sample. As this result was not conclusive the researchers then attempted to assure the statistical significance of this result. A t- test for paired comparison was used, and the findings showed that the calculated t-value was (9.750) at the (0.00) level of significance. Thus, the mean (3.1) indicates that there is a perceived usefulness of wireless device to facilitate communication between project team indicating weak acceptance of the hypothesis, i.e., we can infer that the managers perceived usefulness of using wireless device to facilitate communication between project team is not low but adequate.

Hypothesis H3

This hypothesis suggests that the respondents' perception of ease to use of wireless device to facilitate communication between project team is low. This hypothesis was tested by using the scores of five statements in the survey, which constituted the composite index (scale) used in measuring the perceived ease of the wireless device to facilitate communication between Project Team. The arithmetic means for the five scores of the responses were used for this purpose.

Initially, the arithmetic means for the scores of responses on the five statements were calculated. Table 3 shows the results.

Table 3

Means scores of responses on the ease of use statements
The customers believe that using the Internet (would be free of effort)

Scale Items	Mean
1. Learning to operate the wireless device is easy for me	4.3900
2. I find it easy to get the wireless device to do what I want it to do	4.0500
3. My interaction with the wireless device is clear and understandable	4.1000
4. It is easy for me to remember how to perform tasks using the wireless device	3.9600
5. Overall, I find the wireless device easy to use	4.2333
GRAND MEAN	4.15

To determine the level of ease to use of wireless device to facilitate communication between project team as perceived by the respondents, and in turn, testing the hypothesis, the grand arithmetic mean was calculated to be 4.15. This represents the level of the Jordanian Managers perceived ease of use of the wireless device to facilitate communication between Project Team. When this mean was compared with the 5-points Likert Scale used, it was found that it is greater than the agreement point (+4) which means the rejection of the hypothesis, and in turn we could infer a perceived ease of use of wireless device to facilitate communication between Project Team.

Hypothesis H4

This hypothesis suggests that the Jordanian Managers of commercial banks in Jordan have no intentions to use wireless device in their works. This hypothesis has been tested through the responses on three statements in the survey, which constituted the composite index (scale) used in measuring the respondents' intentions

to use wireless device to facilitate communication between Project Team. The arithmetic means for the scores of the responses on the statements were calculated. Table 4 shows those means.

Table 4

Means scores of respondents intention to use wireless device to facilitate communication between project team (How strong are Jordanian Managers intentions to use wireless device to perform activities).

Behavioural Intention to Use (B1)	Mean
1. I intend to use wireless device to perform Managers activities frequently	3.6933
2. I predict that I should use wireless device to perform Managers activities in the future	4.0233
3. It is likely that I will perform Managers activities with wireless device in the future	4.0833
GRAND MEAN	3.93

To determine the level respondents intention to use wireless device to facilitate communication between project team as perceived by the respondents, and in turn, testing the hypothesis, the grand arithmetic mean was calculated to be 3.93. This represents the level of perceived ease of the use of the wireless device to facilitate communication between Project Team. When this mean was compared with the 5-points Likert Scale used, it was found that it is greater than the agreement point (+4), which means the rejection of the hypothesis.

Hypothesis H5

This hypothesis suggests that the respondents' attitudes toward using wireless device to facilitate communication between project team do not vary according to their perceptions of its usefulness for those operations.

This hypothesis has been tested by using the analysis of variance (ANOVA). The results of this analysis showed that the calculated value F was 2.273 at (0.00) level of significance, with (22, 277) degrees of freedom while its critical value was (1.82) at (0.01) level of significance, and with the same degrees of freedom. When the two values of F were compared, the calculated F value was greater than its critical value. This means the rejection of the hypothesis, which stated that the respondents' attitudes toward the use of wireless device to facilitate communication between project team did not vary according to their perceived usefulness of wireless device to facilitate communication between Project Team. It could, therefore, be inferred that there is an effect of the managers' perceived usefulness of wireless device on their attitudes toward using wireless device to facilitate communication between Project Team. These results are shown in Table 5.

Table 5

An ANOVA analysis of the effect of respondents' perceived usefulness of wireless device on their attitude toward using wireless device to facilitate communication between Project Team

Source of variance	Sum of squares	d.f	Mean square	F	Sig
1. Between Groups	6.770	22	.308	2.273	.001
2. Within Groups	37.500	277	.135		
Total	44.271	299			

Hypothesis H6

This hypothesis suggests that the Jordanian Managers attitudes toward using wireless device to facilitate

communication between project team don't vary with their perceptions of ease of use of Wireless device. This hypothesis has been tested by using the analysis of variance (ANOVA). The results of the analysis showed that the calculated value of F was 27.084 at (0.00) level of significance with 8, 291 degrees of freedom, while its critical value was (2.51) at (0.01) level of significance with the same degrees of freedom. When the two values of F were compared, it was found that its calculated value was greater than its critical value. This means the rejection of the hypothesis which stated that Jordanian Managers attitudes toward using wireless device to facilitate communication between project team don't vary according to their perceived ease of use of Wireless device. This, in turn, means that there was an effect by the managers' perceived of ease of use (Wireless device) on their attitudes toward using wireless device to facilitate communication between Project Team. There results are shown in Table 6.

Table 6

An ANOVA analysis of the effect of respondents' perceived ease of use of wireless device on their attitudes toward using wireless device to facilitate communication between Project Team

Source of variance	Sum of squares	d.f	Mean square	F	Sig
1. Between Groups	18.895	8	2.362	27.084	.000
2. Within Groups	25.376	291	8.720E-02		
Total	44.271	299			

Hypothesis H7

This hypothesis suggests that the Jordanian Managers attitudes toward using wireless device to facilitate communication between project team don't vary according to the interaction

between the managers' perceived usefulness of wireless device to facilitate communication between project team and their perceived ease of use of Wireless device. This hypothesis has been tested using a regression analysis. The results of the analysis showed that the calculated F-value was (52.425) at (0.00) level of significance, and with (2.297) degrees of freedom, while its critical value was (4.61) at (0.01) level of freedom. When the two values of F were compared, it was found that the calculated F value was greater than its critical value. This means the rejection of the hypothesis, and in turn, could be inferred that there is an interaction effect between the managers' perception of the usefulness of wireless device to facilitate communication between project team and their perceived ease of use of wireless device and on the managers' attitude toward using wireless device to facilitate communication between Project Team. These results are shown in Table 7.

Table 7

Results of a regression analysis of the interaction effect between the respondents' Perceived usefulness of Wireless device, and their perceived ease of use of Wireless device, on their attitudes toward using Wireless device

Source of variance	Sum of squares	d.f	Mean square	F	Sig
Regression	11.551	2	5.776	52.425	.000
Residual	32.720	297	.110		
Total	44.271	299			

Hypothesis H8

This hypothesis suggests that Jordanian Managers behavioural intention to use wireless device to facilitate communication between project team don't vary with their attitude toward

using Wireless device. This hypothesis has been tested by using the analysis of variance (ANOVA). The results of the analysis showed that the calculated value of F was 15.527 at the (0.00) level of significance and with (5, 294) degrees of freedom, while its critical value was 2.21 at the (0.01) level of significance with the same degrees of freedom. When the two values of F were compared, it was found that its calculated value was greater than its critical value. This again, means the rejection of the hypothesis, which stated that the managers behavioural intention to use wireless device to facilitate communication between project team don't vary according to their attitudes toward using Wireless device. This, in turn, means that there is an effect of the managers' attitudes toward using wireless device on their behavioural intention to use wireless device to facilitate communication between Project Team. The results are shown in Table 8.

Table 8

Results of an ANOVA analysis of the effect of respondents' attitudes toward using wireless device on their behavioural intention to use wireless device to facilitate communication between Project Team

Source of variance	Sum of squares	d.f	Mean square	F	Sig
1. Between Groups	20.333	5	4.067	15.527	.000
2. Within Groups	77.001	294	026		
Total	97.333	299			

In summary, universal rejection of the hypotheses was an interesting finding. The rejection of the hypotheses H1 to H4 means that the Jordanian managers had positive attitudes to Wireless

device, its perceived usefulness and easy of use. They have the intention to use Wireless device, although the perceived usefulness was relatively lower than the other scores. This may be due to the reasonable high levels of education among the managers. The rejection of the other hypotheses indicates that the relationships among the factors in the TAM model do exist and are positive. Thus perceived usefulness and ease of use do affect the attitudes towards wireless device and the intention to use it to facilitate communication between project team in Jordan. However these results on their own are only a small step in understanding this issue.

CONCLUSION AND FUTURE DIRECTIONS

This paper recognises that there are many factors that could affect the success and effectiveness of wireless device in less-developed regions such as the Middle East. Some of these factors may not be identified in the existing literature on wireless device adoption because most of this research has been conducted in developed countries for which the technology was originally created. A review of the literature and an exploratory study in the Jordanian context suggests that the technology acceptance model, which is the basis of this research, may be useful although it may need to be extended to include specific issues of culture and trust on the customer side and more basic elements of quality in technology usability and service.

While more work is needed to determine a more detailed understanding of the factors and their

influences on the user's behaviour, it is suggested a variation on the TAM model could be useful for those in governments and the industry/service who have an economic imperative to establish the Middle East in the global market place. To this end it is intended that this model will be the basis of a more extensive empirical study of wireless device to facilitate communication between project team in Jordan.

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