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The Use of Information Systems in Aqaba Hotels: An Integration of TAM with Task Technology Fit and Self-Efficacy

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Abstract
Aims: The purpose of this study was to examine the relationship between hotel information system (HIS) users' personal perceptions and beliefs of the given system and their daily routine usage intention via the technology acceptance model (TAM), considering the two external variables (motivational variables) of the model - 'task technology fit' (extrinsic motivation, system feature) and 'self-efficacy' (intrinsic motivation, personal feature).
Design: Data were collected using a self-administrated questionnaire from employees of seven upscale hotels in Aqaba, Jordan, and path analysis was utilized to test structural model and hypotheses.Results: The findings revealed that Task-Technology Fit and Perceived Ease of Use (PEOU) affected Perceived Usefulness which the latter influenced HIS Intention to Use. However, Perceived Ease of Use did not influence Attitude towards Use although the latter affected Perceived Ease of Use. In addition, while Self-Efficacy influenced Perceived Ease of Use HIS, it did not affect the Intention to Use.Originality: This study is the first research that extends the Technology Acceptance Model by incorporating two additional factors namely; task technology fit and self-efficacy to study the use of Information Systems in Aqaba Hotels.
Keywords: Information systems, Technology acceptance model, Task technology fit, Self-efficacy, Structural equation modeling, Hotel management, Jordan

1. Introduction

Hotels are the most lucrative and active sector in tourism industry. Hotels are very labor intensive that operates in a fierce competitive environment to achieve the desired satisfaction level for their external and internal customers. The competition is also manifested through special expansion, applying the most advanced technology, and adopting and encouraging innovations. Hotels depend strongly on information and communication technology (Ramos & Perna, 2009; Nusair, et al., 2012). Implementation of new innovation in information technology (IT) is critical factor of success in hotel industry (Cerovic & Petrovic, 2005; Cobanoglu et al., 2013; Hajar & Al-Dalahmeh, 2015; Obeidat, et al., 2017; Ozturk, et al., 2017). IT innovation in services is considered a softer kind of innovation which directed to enhance the morale, skills and knowledge of the employees (Mattson, et al., 2005; Maqableh & Karajeh, 2014; Tarhini, et al., 2015, 2017). One of the vital successes of implementing innovation is communication aspect (Cerovic & Petrovic, 2005; Cacic, 2010; Bilgihan, et al., 2014), and the cultural contexts (Shannak, et al., 2012).

Hotel Information Systems (HIS) has an effect on employees' attitude, morale, and productivity (Dušan, 2014; Alananzeh et al., 2015b). Adopting information systems reduce costs, build staff morale, enhance service quality, and respond to the increasing demand from customers (Karatepe & Olugbade, 2009; Al Azmi, et al., 2012; Alshurideh & Alkurdi, 2012; Alananzeh, 2014; Bazazo, Alananzeh & Alshawagfih, 2016a). Organizations that do not provide and train their employees with the most advanced technology could lose business opportunities to other competitors (Othman, 2009; Cacic, 2010; Masa'deh, et al., 2015). The strategic use of various HIS provides a competitive advantage by improving operational efficiency, and enhancing service quality on the long term (Petrovic & Antevski, 2007). The benefits of adopting HIS can be achieved when a particular system is welcomed and supported by users in ways that contribute to achieving the organizational

goals (Tijana & Nikica, 2014; Bazazo & Alananzeh, 2016), users' normal routine usage of HIS may vary in accordance with their evaluations of the given system (Venkatesh & Davis, 2000). Therefore, it is important to investigate which factors affect hotel employees' acceptance of HIS in order to indicate practical implications for HIS practitioners when planning strategically and implementing effective tools to improve hotel employees' job productivity or performance. Accordingly, Hotel employees evaluations of the given Hotel Information System (HIS) have become an extremely salient issue for both managers and researchers, enabling them to better understand how hotel employees personal evaluations of HIS affect their normal routine usage. A better understanding of the proposed hotel employees' normal routine usage would have great practical value, not only for HIS managers who would like to manage a HIS effectively and make it an integral component of their business strategy, but also for HIS practitioners who wish to assess hotel employees' attitude and acceptance behavior. Hotel sector is the largest service sector of the hospitality industry in Jordan. There are 375 hotels operating in Jordan, where around 19139 employees are working in these Hotels (MOTA, 2016). Since no research was conducted to apply the model on Jordan's hotels, therefore, this study was conducted to test the model on Aqaba hotel.

The current study aimed at examining the casual of the Technology Acceptance Model (TAM) Variables; Perceived Ease Of Use (PEOU), Perceived Usefulness (PU), Attitude Towards Use (ATU), and Intention To Use (ITU) in the hotel employees' acceptance behavior of Hotel Information Systems (HIS) . Also, the study aimed at assessing the impacts of Task-Technology Fit (TTF) and Self-Efficacy (SE) as external variables of the TAM on the variables of the TAM in hotel employees' acceptance behavior of HIS. And finally, the study tried to provide practical implications for hotel managers and HIS practitioners to plan strategically and implement effective tools to motivate hotel employees towards willingness to use and acceptance behavior of HIS.

2. Literature Review

Information System (IS) was defined as a set of data, processes, interfaces, networks, technologies and people that are interrelated in order to support and improve everyday business operations, solving business problems, and data processing (Njegus, 2010; Shannak et al., 2010; Masa'deh, 2012, 2013; Maqableh & Karajeh, 2014a; Kateb et al., 2015, Alananzeh, et al., 2015c). Information system assists top-level management to make the appropriate decisions to achieve the company's mission and goals (Rob & Giri, 2005), among other services (Almajali & Al-Lozi, 2016; Tarhini, et al., 2016; Khwaldeh, et al., 2017; Masa'deh, et al., 2018). Its usage permeates the whole company's sectors (Barjaktarovic, 2013, Bazazo, et al., 2016b). It should be a modern technical solution, which makes it easy to use and service the clients. It is one of the most important tools for the progress and development of the hospitality industry; its role has changed from supporting operations to assisting strategic decision-makings. Information systems are inseparable from business operations, customer services, cost control, and strategic planning (Laudon, 1986; Taegoo, et al., 2010; Chiu & Ananzeh, 2012a, 2012b; Slobodan & Slađana, 2014; Masa'deh, et al., 2017). Hotel companies are not considered leaders when it comes to the introduction of information systems into their business. True leaders actually were airlines. All of hotel information systems softer are created using the same principle with the basic difference in that how much are they acceptable, standardized, efficient and adaptable (Njegus, 2010; Shannak, 2012). Today, however, applying information systems in the hotel business do not have only the function of the cost-effectiveness; modern software became practically hotel manager advisors in the decision making process through the use of intelligent and integrated information technology (Cacic, 2010; Barjaktarovic, 2013). Success rate of hotel business depends on modernize their information systems, the employees' acceptance of the new or updated system, processing and using of information so they can satisfy themselves and the new generation of sophisticated guests exist in the market (Laudon, 1986; Huh et al., 2009; Barjaktarovic, 2013; Jawabreh, et al., 2015; Ozturk et al., 2016; Alananzeh, et al., 2017a; Alananzeh, 2017). Kim & Cho (2007) found that all core front office, IS such as mobile applications (Masa'deh, et al., 2013a, 2013b) significantly improved service quality in upscale hotels. The value of implementing IT for full-service hotels is to improve service and increase employee morale.

In the late 1980s, the TAM was developed for the IS discipline (Davis, 1986). Davis (1989) developed the TAM based on the Theory of Reasoned Action to predict behavior of information technology users. Lee et al. (2003) considered TAM as the most influential and a powerful theory, which describes the individual's acceptance of information systems. The model proposed that there are some external variables affect internally on the attitude, beliefs, and intention of users which affects on their usage behavior. Users' attitude was measured by two motivational factors; perceived usefulness and perceived ease of use. The effect of these two factors would shape the users' behavioral intention whether to use (accept) the technology system or not use it (reject). TAM has led to much exploration and widespread discussion over its application and extensions (Yi & Hwang, 2003; Kim, et al., 2010; Butt, et al., 2016). The model then has dominated IS research to predict users' information technology acceptance or rejection of any new system (Hong et al., 2011). Liao et al. (2009) stated that TAM received wide attention from IS researchers for it has a strong foundation in psychological theories (Taylor & Todd, 1995); it can be used as a guideline to develop a successful IS in aviaries settings (Huh & Kim,

2008), and because previous research supports the robustness of the model across time, setting, populations, and technologies (Venkatesh & Davis, 2000). Davis (1986) assumed that perceived usefulness refers to the employee's expectation and beliefs that using a particular system would improve his job performance within an organizational context. Whereas, perceived ease of use refers to the users' beliefs that using a particular system will reduce his mental and physical stress and pressure (Davis, et al., 1989). Dulcic, et al., (2012) pointed out that employees prefer to use systems that are easy to use rather than useful systems. Chuttur (2009) assured that perceived ease of use and perceived usefulness have a direct influence on behavioral intention.

2.1 Perceived Ease of Use (PEOU), Perceived Usefulness (PU), and Attitude towards Use (ATU)

The proposed research model and hypotheses, which are illustrated in Figure 1, adopted the original TAM's (Davis, 1986) 'beliefs (i.e. PEOU and PU) → ATU → ITU' casual chain. In addition, this study extends the TAM via the addition of two motivational variables — 'TTF' (extrinsic motivation; system feature) and 'SE' (intrinsic motivation; personal feature) — to reflect hotel employees' concerns regarding the technological resources and knowledge required to use a HIS. Regarding the original TAM's variables, the empirical results of (Davis, 1989; Venkatesh & Davis, 2000; Kim, et al., 2010; Barreda, et al., 2016) demonstrated that PEOU directly influenced PU and ATU. Adams, et al. (1992) and Davis, et al., (1989) report that user acceptance of computer systems is driven to a large extent by PU. The importance of PU derives from the TRA (Fishbein & Ajzen, 1975) and TAM (Davis, 1986), which propose that PU affects IS usage due to reinforcement values of outcomes. If users perceive a proposed system as being useful, users would have a positive ATU and would be more likely to utilize the system (Davis, 1989; Adams et al., 1992). Additionally, the ATU of a specific system has a direct effect on the ITU of the specific system in the future (Davis et al., 1989). In the context of hotel employees' HIS acceptance, hotel employees prefer to evaluate their performance of HIS usage in terms of the associated benefits and time costs, including the maximization of their productivity, operational efficiency and customer satisfaction, as well as the minimization of the time required to complete a task (i.e. PU) (Huh, et al., 2009). PEOU represents the degree to which HIS is perceived to be easy to understand, learn or operate. It should be verified in a scientific method; however, the researchers hypothesize that hotel employees are likely to believe that HIS usage is relatively easy if HIS has a well-designed employee interface. Kim, et al. (2010) studied employees' acceptance behavior of hotel front office system (HFOS) in upscale hotels, and determined that PEOU exerts a positive influence on PU and ATU of HFOS. In addition, they determined that PU exerts a positive influence on ATU of HFOS. Figure (1) represents a model for the study that shows the relationships among the research variables.

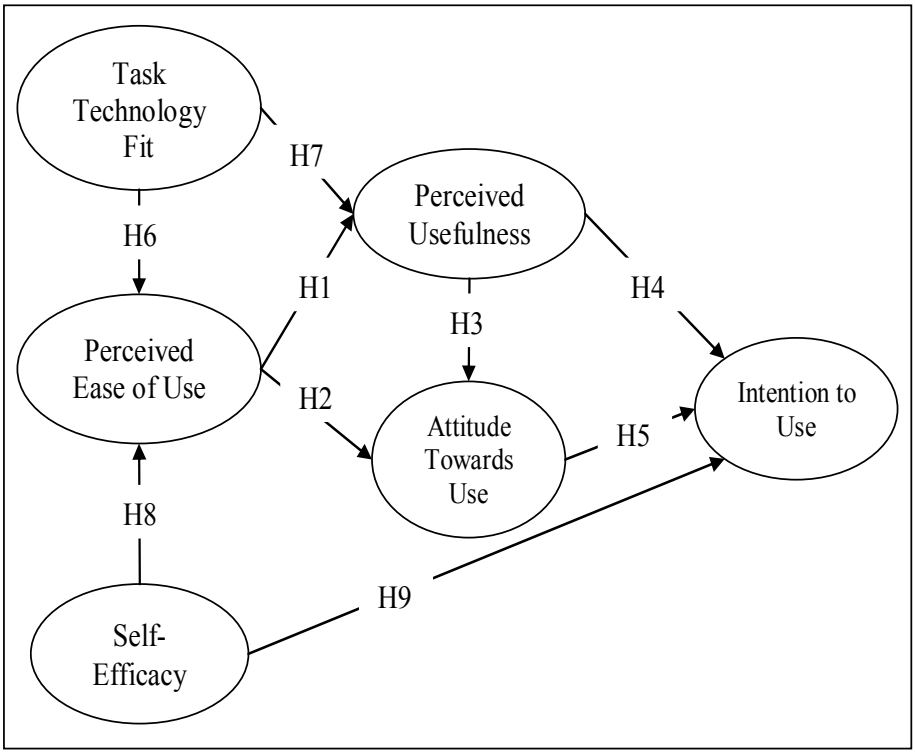

Figure 1. The Proposed Research Model

The following hypotheses were proposed:

Hypothesis 1: PEOU positively affects PU of HIS.

Hypothesis 2: PEOU positively affects ATU of HIS.
Hypothesis 3: PU positively affects ATU of HIS.
Hypothesis 4: PU positively affects ITU of HIS.
Hypothesis 5: ATU positively affects ITU of HIS.

2.2 Task-Technology Fit (TTF)

This study assumes that hotel employee' perceptions of the PEOU and PU of HIS can be influenced by the nature of the tasks that employees are engaged in (i.e. TTF). PU is an indicator of the degree to which the use of an IS will enhance a user's job performance. In other words, there is no substantial difference between the concept of 'performance impacts' in TTFM and the concept of 'PU' in the TAM. Goodhue & Thompson (1995) argue that the degree of TTF, defined as a matter of how the capabilities of the IS match the tasks that the user must perform, is a major factor in explaining job performance levels. The positive scenario is that the more a technology meets specific work task characteristics, the higher is the probability that the technology will contribute to an improved job performance (Goodhue, et al., 2000; Masa'deh, et al., 2008; Alkalha, et al., 2012; Obeidat, et al., 2013). Many previous empirical studies (e.g. Lee, et al., 2003; Kim & Cho, 2007) have suggested that the perception of whether a particular technology fits well with the present values of users (i.e. PEOU and PU) can be a basis for forming perceptions of actually utilizing the technology. Recently, the empirical results reported by Klopping & McKinney (2004) demonstrated that TTF directly influenced PEOU and PU. In addition, Kim & Cho's (2007) study revealed a stronger relationship between TTF and PU ($\beta = 0.72$) than between TTF and PEOU ($\beta = 0.34$), empirically demonstrating a more direct and powerful effect of TTF on the PEOU and PU in the context of hotel employees' HIS acceptance. Hotel employees utilize a HIS daily for the performance of their routine tasks.

Task and technology characteristics influence individuals' performance in using the HIS and also shape perceptions of individuals' influence task and technology factors (Lam, et al., 2007; Chan & Choi, 2012). TTF indicates to how far the technology is capable to match the demands of the task, which means that it must fit performance and task characteristics (Altamony, et al., 2012; Zhang, et al., 2017). Zhou et al. (2008) Argued that characteristics of the tasks in hotels have a clear influence on employees' task-IT fit. TTF will be used effectively only if the functions and features of that technology could fulfill the users' information needs (Kuo & Lee, 2011). TTF has a significant effect on purchasing intention (Chen & Huang, 2016). It also has a significant positive effect on jobseekers (Huang & Chuang, 2016). Thus, in the hotel setting, the following hypotheses were proposed for the study:
Hypothesis 6: TTF positively affects PEOU of HIS.
Hypothesis 7: TTF positively affects PU of HIS.

2.3 Self-Efficacy (SE)

This study assumes that hotel employees' perceptions as to the PEOU of HIS can be influenced by their experience and knowledge with the new system or with other technology (i.e. SE). According to Wasko & Faraj (2005), self-efficacy plays vital role in influencing individual's behavior and motivations to share knowledge/information with others (Gharaibeh & Obeidat, 2015). Thus, this study focused primarily on whether hotel employees believed they had the required knowledge, skill, or ability to use a HIS. The relationship between SE and PEOU is predicated on the theoretical argument propounded by Davis (1989). There exists a variety of empirical evidence for a causal link between SE and PEOU (e.g. Venkatesh & Davis, 2000; Luarn & Lin, 2005). In addition, SE has been demonstrated to be associated with users' technology acceptance (Compeau & Higgins, 1995). Recently, Agarwal, et al. (2000) proposed a model with both general computer SE (GCSE) and application-specific SE (ASSE). The results revealed a stronger relationship between ASSE and PEOU ($\beta = 0.43$) than between GCSE and PEOU ($\beta = 0.20$), empirically demonstrating a more direct and powerful effect of ASSE on the PEOU. In the context of hotel employees' HIS acceptance, therefore, if hotel employees have the ability to perform their tasks by using a given HIS, they should perceive the system as being easy to use and thus should be more likely to use the system. Thus, based on the literature review and previous studies regarding SE, the following hypotheses were suggested:
Hypothesis 8: SE positively affects PEOU of HIS.
Hypothesis 9: SE positively affects ITU of HIS.

3. Research Methodology

3.1 Research Design

This research uses a structural equation modeling (SEM) approach based on AMOS 21 to study the causal relationships and to test the hypotheses between the observed and latent constructs in the proposed research model. SEM can be divided into two sub-models: a measurement model and a structural model. While the measurement model defines relationships between the observed and unobserved variables, the structural model

identifies relationships among the unobserved/latent variables by specifying which latent variables directly or indirectly influence changes in other latent variables in the model (Hair, et al., 2010; Byrne, 2016). Furthermore, the structural equation modeling process consisted of two components: validating the measurement model and fitting the structural model. While the former is accomplished through confirmatory factor analysis, the latter was accomplished by path analysis with latent variables (Kline, 2005). Using a two-step approach assures that only the constructs retained from the survey that have good measures (validity and reliability) will be used in the structural model (Hair, et al., 2010).

The basis for data collection and analysis is a field study in which respondents answered all items on a five point Likert-scales ranging from 1 (strongly disagree) to 5 (strongly agree) for the research constructs of task-technology fit, self-efficacy, perceived ease of use, perceived usefulness, attitude to use, and intention to use. Furthermore, elements used to consider each of the constructs were primarily obtained from prior research. These elements provided a valued source for data gathering and measurement as their reliability and validity have been verified through previous research and peer reviews. The constructs involved are: task-technology fit, self-efficacy, perceived ease of use, perceived usefulness, attitude to use, and intention to use; and all validated by Kim, et al. (2010). However, task-technology fit was measured with five items adapted from the work of Goodhue & Thompson (1995). Self-efficacy measurement was drawn in accordance with the methods described by Taylor & Todd (1995), and measured with three items. Perceived ease of use was assessed with four items adapted from Davis (1989) and Adams et al., (1992). Perceived usefulness was assessed with four items adapted from the study conducted by Davis (1989). In addition, attitude to use was adapted from Davis, et al. (1992) and measured with four items. Finally, intention to use was measured with three items adapted from Lam, et al., (2007). All in all, 23 items were included to measure the research constructs.

3.2 Measures

Validated scales from the relevant literature were employed with some slight modifications and multiple-item scales were used to measure each construct. A 5-point Liker-type scale was utilized for all of the measurement scale items, with anchors ranging from ‘strongly disagree’ (1) to ‘strongly agree’ (5). PEOU were measured with four items adapted from (Davis, 1989) and (Adams et al., 1992). The respondents were asked whether they thought that using a HIS would be relatively free of effort. PU was measured with four items adapted from the study conducted by (Davis, 1989). Respondents were asked whether they thought that using a HIS would enhance their job performance. The measurement of ATU was conducted in accordance with the method developed by (Davis, et al., 1992). This construct was measured with four items, and asked subjects to indicate their feelings regarding the usage of HIS. Additionally, ITU was assessed with three items adapted from (Lam, et al., 2007). The respondents were asked to indicate the extent to which they agreed with statements relating to the daily routine usage of HIS. With regard to external variables of the TAM, as extrinsic motivation factor, TTF was assessed with five items adapted from the work of Goodhue & Thompson (1995). The respondents were instructed to indicate their perceived level of importance for each item. Finally, as intrinsic motivation factor, SE measurement was conducted in accordance with the methods described by (Taylor & Todd, 1995). This construct was measured with three items asking subjects to indicate the extent to which they agreed with statements regarding their willingness to utilize a HIS in their work. The questionnaire was pretested with 10 experienced HIS users. They were instructed to rate the appropriateness of the items in each scale. Minor modifications were made, on the basis of the comments collected throughout the pretest.

3.3 Sample and Data Collection

The research sample consisted of all employees of seven upscale hotels in Aqaba, which is the most famous tourist destination in Jordan. In terms a few were international chain hotels. The seven international chain hotels were Kempinski, Movenpick, Intercontinental, Double Tree by Hilton, Radisson blue, Days Inn and Movenpick Tala Bay. Of the 200 questionnaires administered, 151 surveys were returned, corresponding to a response rate of 85%. Among the returned surveys, 149 questionnaires were usable, representing an effective response rate of 95%. Indeed, the demographic profile of the respondents for this study, who use HIS frequently, revealed that the sample consisted of more males working in clerical positions holding bachelor degrees, most of them experienced more than three years (49%), about 92% of them from 20 to less than 40 years old, and most of them works in the front office.

3.4 Sample and Procedure

Empirical data for this study was collected through paper-based survey in Aqaba city in Jordan. Specifically, a survey questionnaire was used to gather data for hypotheses testing from hotels. Before implementing the surveys, the instrument was reviewed by four lecturers who are specialized in the hotel management discipline in order to identify problems with wording, content, and question ambiguity. After some changes were made based on their suggestions, the modified questionnaire was piloted on three employees who are working at the hotel

industry located in Aqaba. Based on the feedback of this pilot study, minor edits were introduced to the survey questions, and the questionnaires were distributed to the participants. As per ethics policies, all potential participants were briefed about the nature of the work and were requested to provide explicit approval. The population of this study consists of all staff working in Aqaba five stars hotels located in Jordan, which counts of 1615 according to the statistics of the Ministry of Tourism and Antiquities (2016). The sample size of this study was determined based on the rules of thumb for using SEM within AMOS 21 in order to obtain reliable and valid results. Kline (2010) suggested that a sample of 100-200 or larger is suitable for a complicated path model. Furthermore, after eliminating the incomplete surveys, our sample size (149) from hotels met the recommended guidelines of Kline (2010), and Pallant (2005).

4. Results and Discussions

Table 1 shows different types of goodness of fit indices in assessing this study initial specified model. It demonstrates that the research constructs fits the data according to the absolute, incremental, and parsimonious model fit measures, comprising chi-square per degree of freedom ratio (x^2/df), Incremental Fit Index (IFI), Tucker- Lewis Index (TLI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR).

Table 1. Measurement model fit indices

Model	x^2	df	P	x^2/df	IFI	TLI	CFI	RMSEA	SRMR
Initial Model	445.071	215	0.000	2.070	0.84	0.81	0.84	0.085	0.087
Final Model	316.938	155	0.000	2.045	0.88	0.85	0.88	0.083	0.085

The researcher examined the standardized regression weights for the research's indicators and found that most of the indicators had a high loading towards the latent variables. Moreover, since all of these items did meet the minimum recommended value of factor loadings of 0.50; and RMSEA and SRMR less than 0.10 (Newkirk & Lederer, 2006; Hooper et al., 2008; Hair et al., 2010; Kline, 2010), they were all included for further analysis, except TF5, AT3, and IU3 which has a loading of 0.45, 0.46, and 0.33 respectively, thus excluded from further analysis. Therefore, the measurement model showed a better fit to the data (as shown in Table 1). For instance, x^2/df was 2.045, the IFI = 0.88, TLI = 0.85, CFI = 0.88; RMSEA = 0.083, and SRMR = 0.085 indicated better fit to the data considering all loading items.

4.1 Measurement Model

Confirmatory factor analysis (CFA) was conducted to check the properties of the instrument items. Indeed, prior to analyzing the structural model, a CFA based on AMOS 21 was conducted to first consider the measurement model fit and then assess the reliability, convergent validity and discriminant validity of the constructs (Arbuckle, 2009). The outcomes of the measurement model are presented in Table 2, which encapsulates the standardized factor loadings, measures of reliabilities and validity for the final measurement model.

4.1.1 Unidimensionality

Unidimensionality is the extent to which the study indicators deviate from their latent variable. An examination of the unidimensionality of the research constructs is essential and is an important prerequisite for establishing construct reliability and validity analysis (Chou, et al., 2007). Moreover, in line with Byrne (2016), this research assessed unidimensionality using the factor loading of items of their respective constructs.

Table 2. Properties of the final measurement model

Constructs and Indicators	Std. Loading	Std. Error	Square Multiple Correlation	Error Variance	Cronbach Alpha	Composite Reliability	AVE
Task-Technology Fit					0.775	0.82	0.53
TF1	0.704	***	0.496	0.453			
TF2	0.803	0.102	0.645	0.272			
TF3	0.788	0.103	0.621	0.302			
TF4	0.502	0.110	0.240	0.723			
Self-Efficacy					0.755	0.70	0.46
SE1	0.501	***	0.251	0.355			
SE2	0.617	0.172	0.380	0.363			
SE2	0.551	0.198	0.303	0.369			
Perceived Ease of Use					0.855	0.81	0.52
PE1	0.744	***	0.554	0.555			
PE2	0.791	0.104	0.626	0.505			
PE3	0.779	0.112	0.607	0.614			
PE4	0.774	0.105	0.600	0.545			
Perceived Usefulness					0.747	0.84	0.52
PU1	0.762	***	0.580	0.252			
PU2	0.611	0.101	0.374	0.420			
PU3	0.645	0.107	0.416	0.440			
PU4	0.623	0.108	0.388	0.469			
Attitude Towards Use					0.667	0.77	0.53
AT1	0.635	***	0.403	0.319			
AT2	0.660	0.147	0.435	0.350			
AT4	0.609	0.144	0.370	0.399			
Intention to Use					0.727	0.78	0.64
IU1	0.765	***	0.586	0.283			
IU2	0.750	0.114	0.562	0.357			

Table 2 shows solid evidence for the unidimensionality of all the constructs that were specified in the measurement model. All loadings were above 0.50, except TF5, AT3, and IU3, which is the criterion value recommended by Newkirk & Lederer (2006). These loadings confirmed that 20 items were loaded satisfactory on their constructs.

4.1.2 Reliability

Reliability analysis is related to the assessment of the degree of consistency between multiple measurements of a variable, and could be measured by Cronbach alpha coefficient and composite reliability (Hair, et al., 2010). Some scholars (e.g. Bagozzi & Yi, 1988) suggested that the values of all indicators or dimensional scales should be above the recommended value of 0.60. Table 2 indicates that all Cronbach Alpha values for the six variables exceeded the recommended value of 0.60 (Bagozzi & Yi, 1988) demonstrating that the instrument is reliable. Furthermore, as shown in Table 2, composite reliability values ranged from 0.70 to 0.84, and were all greater than the recommended value of more than 0.70 (Bagozzi & Yi, 1988) or greater than 0.70 as suggested by Holmes-Smith (2001). Consequently, according to the above two tests, all the research constructs in this study are considered reliable. As can be shown in Table 2, since the measurement model has a good fit; convergent validity and discriminant validity can now be assessed in order to evaluate if the psychometric properties of the measurement model are adequate.

4.1.3 Content, Convergent, and Discriminant Validity

Although reliability is considered as a necessary condition of the test of goodness of the measure used in research, it is not sufficient (Creswell, 2009; Sekaran & Bougie, 2013), thus validity is another condition used to measure the goodness of a measure. Validity refers to which an instrument measures is expected to measure or what the researcher wishes to measure (Blumberg, et al., 2014). Indeed, the items selected to measure the six variables were validated and reused from previous researches. Therefore, the researcher relied upon in enhancing the validity of the scale was to benefit from a pre-used scale that is developed from other researchers. In addition, the questionnaire items were reviewed by four instructors of the Faculty of Tourism and Hospitality at the

University of Jordan-Aqaba branch. The feedback from the chosen group for the pre-test contributed to enhanced content validity of the instrument. Moreover, in order to enhance the content validity of the instrument, three employees who are working in Aqaba hotels were asked to give their feedback about the questionnaire, thus confirming that the knowledge presented in the content of each question was relevant to the studied topic.

Furthermore, as convergent validity test is necessary in the measurement model to determine if the indicators in a scale load together on a single construct; discriminant validity test is another main one to verify if the items developed to measure different constructs are actually evaluating those constructs (Gefen, et al., 2000). As shown in Table 2, all items were significant and had loadings more than 0.50 on their underlying constructs. Moreover, the standard errors for the items ranged from 0.101 to 0.198 and all the item loadings were more than twice their standard error. Discriminant validity was considered using several tests. First, it could be examined in the measurement model by investigating the shared average variance extracted (AVE) by the latent constructs. The correlations among the research constructs could be used to assess discriminant validity by examining if there were any extreme large correlations among them which would imply that the model has a problem of discriminant validity. If the AVE for each construct exceeds the square correlation between that construct and any other constructs then discriminant validity is occurred (Fronell & Larcker, 1981). As shown in Table 2, this study showed that the AVEs of most of the constructs were above the suggested level of 0.50, implying that the research constructs that ranged from 0.46 to 0.64 were responsible for more than 50 percent of the variance in their respected measurement items, which met the recommendation that AVE values should be near 0.50 for each construct (Bagozzi & Yi, 1988; Holmes- Smith, 2001). Furthermore, as shown in Table 3, discriminant validity was confirmed as the AVE values were more than the squared correlations for each set of constructs. Thus, the measures significantly discriminate between the constructs.

Table 3. AVE and square of correlations between constructs

Constructs	TF	SE	PE	PU	AT	IU
TF	0.53					
SE	0.47	0.46				
PE	0.35	0.45	0.52			
PU	0.41	0.37	0.39	0.52		
AT	0.37	0.38	0.37	0.48	0.53	
IU	0.44	0.47	0.42	0.45	0.49	0.64

Note: Diagonal elements are the average variance extracted for each of the six constructs. Off-diagonal elements are the squared correlations between constructs.

4.2 Structural Model and Hypotheses Testing and Interpretation

Following the two-phase SEM technique, the measurement model results were used to test the structural model, including paths representing the proposed associations among research constructs. Further, in order to examine the structural model it is essential to investigate the statistical significance of the standardized regression weights (i.e. t-value) of the research hypotheses (see Table 4); and the coefficient of determination (R^2) for the research endogenous variables as well. The coefficient of determination for perceived ease of use, perceived usefulness, attitude to use, and intention to use were 0.21, 0.51, 0.35, and 0.46 respectively, which indicates that the model does moderately account for the variation of the proposed model. In addition, as shown in Table 4, all hypotheses were accepted except H2, H6, and H9 which were rejected.

Table 4. Summary of proposed results for the theoretical model

Proposed Paths	Coefficient Value	t-value	p-value	Empirical Evidence
H1: PE → PU	0.214	1.984	0.043	Supported
H2: PE → AT	0.010	0.237	0.813	Not supported
H3: PU → AT	0.628	10.362	0.000	Supported
H4: PU → IU	0.380	4.932	0.000	Supported
H5: AT → IU	0.505	6.981	0.000	Supported
H6: TF → PE	0.122	1.455	0.146	Not supported
H7: TF → PU	0.642	14.466	0.000	Supported
H8: SE → PE	0.593	7.192	0.000	Supported
H9: SE → IU	0.004	0.081	0.936	Not supported

TF: task-technology fit; SE: self-efficacy; PE: perceived ease of use; PU: perceived usefulness; AT: attitude to use; and IU: intention to use

The findings of the first hypothesis, PEOU positively affects PU of HIS, indicated that PEOU is a strong predictor of PU. This result is consistent with the previous studies (Davis, 1989; Agarwal, et al. 2000; Huh & Kim, 2008; Huh, et al., 2009). Whereas, the finding of the third and the fourth hypotheses showed that PU

positively affects ATU of HIS, and that PU positively affects ITU of HIS, in addition to the fifth hypothesis of the study indicated that ATU positively affects ITU of HIS. This shows that the more HIS is perceived as easy to use, the more likely hotel employees will perceive the HIS as useful. Meanwhile, findings indicated that PEOU and PU are predictors of the ATU of HIS. This is consistent with the results of previous studies such as (Davis, 1989; Adams, et al., 1992; Kim, et al., 2010).

In particular, the effect of PU on ATU is more profound than that of the PEOU of HIS. This shows that HIS users tend to focus on the utility of the system itself, rather than its ease of use in forming an ATU of HIS. That is, if a given HIS provides critically needed functionality, users tend to be willing to cope with some difficulty of use (Davis, 1989; Lee, et al., 2003). Therefore, given the constraints on business resources, HIS practitioners must focus more on useful function than on ease of use. Specifically, the indirect effect of PEOU on ATU via the PU of HIS was found to be apparent. Therefore, PU served as an important mediating variable between the PEOU and ATU of HIS. ATU and PU were associated positively with ITU of HIS. These results showed that PU had a significantly positive effect on ITU of HIS, which corresponds to technology acceptance as advocated by (Davis, 1989; Adams, et al. 1992), as well as (Agarwal, et al. 2000). The findings also demonstrate that the effect of ATU on ITU of HIS is both significant and positive, which is consistent with the findings of (Davis, 1989; Adams, et al. 1992).

In addition, the findings revealed TTF positively affects PEOU of HIS, and that TTF positively affects PU of HIS, the results indicated that the indirect effect of PU on ITU via the ATU of HIS was found to be apparent. Thus, ATU functioned as a crucial mediating variable between PU and ITU of HIS. With regard to TTF as an extrinsic motivational factor, path analysis shows that TTF is associated positively not only with PEOU but also with the PU of HIS. This result is consistent with the conclusions of (Klopping & McKinney, 2004), who suggested that TTF has effects on PEOU as well as PU in the context of e-commerce. When the degree of fit between the task and HIS becomes greater, hotel employees perceived HIS to be easier to use for that task, and thus more useful. The findings mentioned earlier provide an improved understanding of the factors that promote HIS acceptance. In particular, the effect of TTF on PU is stronger than that of TTF on the PEOU of HIS. This suggests that TTF is principally related to the perception of utility, rather than the perception of ease of HIS use. More specifically, TTF was not only directly associated with PU and PEOU but was also associated indirectly with ITU. This result is consistent with the conclusions reported by Venkatesh & Davis (2000) who suggested that job relevance exerts a direct effect on PU, after conceptualizing job relevance to be similar to TTF. As an intrinsic motivational factor, SE exerted a significantly positive effect on PEOU and ITU of HIS.

Finally, the findings also indicated that SE positively affects PEOU of HIS, and that SE positively affects ITU of HIS, these findings support the results of previous studies, which demonstrated that SE influenced PEOU (Luarn & Lin, 2005) and intention (Compeau & Higgins, 1995). As suggested by this study's extended TAM, SE influences ITU either directly or indirectly via its effects on the PEOU and ATU of HIS. Thus, management attention might be more fruitfully focused on the development of SE. HIS practitioners can increase hotel employees' ITU of HIS through SE and the mediating TAM variables (i.e. PEOU and ATU). This study has provided some preliminary evidence regarding hotel employees' psychological factors with regard to HIS acceptance.

5. Conclusion

5.1 Implications of the Research

The research was conducted to examine the relationship between hotel information systems (HIS) users' personal perceptions and beliefs of the given system and their daily routine usage intention via the technology acceptance model (TAM), considering the two external variables (motivational variables) of the model — 'task technology fit (extrinsic motivation, system feature) and 'self-efficacy' (intrinsic motivation, personal feature). The findings of this research revealed that PEOU positively affects PU of HIS; PU positively affects ATU and ITU of HIS. In addition, ATU positively affects ITU of HIS. The study revealed that TTF positively affects PU of HIS and that that SE positively affects PEOU of HIS. Siguaw, et al. (2000) assured that luxury and upscale hotels adopt every new advanced technology that increases employees' efficiency. The findings indicated that PEOU is a strong predictor of PU and consequently PU affects on the employees intention to use the given system based on its easiness of use. PEOU was found as antecedent of PU (Lee, et al., 2003). Also, it was revealed that TF positively affects PU and SE positively PE. It was obvious that the extrinsic motivation TF is a strong predictor of PU of HIS and the intrinsic motivation SE is a strong predictor of PE. This shows that the more the employees perceive the information system applied by the hotel as easy to use, the more likely they will perceive this system as useful.

5.2 Implications of Management

The results of the study provide practical implications for HIS practitioners to plan strategically and implement effective tools to improve hotel employees' job productivity or performance. Based on these findings, a number

of salient implications for hotel managers and HIS practitioners can be proposed. First, HIS providers, by offering opportunities such as the testing of system features related to hotel employees' specific tasks, could ensure hotel employees that the proposed HIS fits the hotel employees' current task needs well (i.e. TTF). In addition, a HIS should be upgraded to improve both users' and organization's efficacy, eventually making a dramatic contribution to improving customer satisfactions. Also, the system flexibility should be enhanced to exchanging with other systems without any restricted access and sharing information internally and externally in the organization. By doing so, they can increase hotel employees' PEOU, PU and ATU, which in turn affects the hotel employees' ITU of HIS.

Second, in the hotel business, hotel managers and HIS practitioners must provide relevant and sufficient training to increase hotel employees' familiarity with the HIS, in order to allow the hotel employees to gradually develop their level of SE in using the HIS, technological skills which are invaluable for hotel employees (Kim, et al., 2010). Also, prompt reaction and user-oriented support should be provided to hotel employees. Comprehensive understanding of employees' need with respect to the use of HIS is essential for the useful usage of HIS. Connolly (2000) assured that service companies should focus on those who perform the task (i.e., the employees) rather than the process (i.e., the technologies) that comprises the service package. In addition, hotel managers should counsel their employees immediately if they experience problems with HIS acceptance. They should also provide continuous feedback, support, and encouragement for hotel employees, allowing them to master the relevant technological skills within a short period of time (Lam, et al., 2007). The shorter the time required for hotel employees to master HIS use, the greater their motivation will be to accept a new HIS. Third, hotel employees should realize that benefits such as increasing efficiency and profit, improving productivity, and reducing the time required to complete a task using HIS would result in better job performance. This, in turn, will improve both customer satisfaction and operational efficiency. According to our results, when hotel employees use a HIS and perceive that the system improves their efficiency, productivity and task outcomes, their motivation increases substantially. Fourth, the HIS must be designed in a way such that the language and technology are easy to understand. In addition, the HIS must provide a safe and short transaction time, such that hotel employees may reduce the amount of time spent on the system and may increase the amount of time spent on customer service (Kim, et al., 2010). Using the results and recommendations of this study, hotel managers can determine how best to apply their HIS in their hotels, and to convey the opinions of HIS users to HIS practitioners. Finally, there is a real need for sustainable re-education to hotel employees in skills and benefits on a HIS such as improvement of efficiency and productivity, leading better performance in their tasks and eventually customer satisfactions. As presented in the results, the efficiency, productivity, outcome and motivation of users would be noticeably increased when they perceive the value of HIS and are willing to use it. Hotel managers are recommended to consider how to optimally apply the system in their front- and back-office, and how to effectively communicate among users, providers, managers and customers. There is a real need for future research to measure the acceptance of TAM from the student and lecture educational point of view, to educate hotel employees in skills and benefits on a HIS which leads to better performance in their tasks and eventually customer satisfactions.

5.3 Limitations of the Study

The scope of this study is limited to one tourist city and a small sample of five- star hotels, in addition, a HIS is a complex software application consisting of different modules and functions in different areas of front- and back-office of a hotel. Future research could address these limitations and test the model on different regions and on three and four star hotels. However, many studies on TAM were applied from employees' perspective; future studies could examine TAM from the perspective of students in tourism and hospitality institutions or in internship programs. A quantitative technique was used as the main method to collect the data; this might be considered as a limitation of this study. More qualitative techniques are recommended to be used to get more accurate data and results to achieve the goals and objectives of this study. Future studies could replicate the results of this study with more samples and unlimited time to improve generalizability to other tourism and hospitality sectors. Indeed, although the study used a small random sample compared to the large number of constructs, the results cannot be generalized to the entire population. Further studies with different sample group's covers different areas in Jordan or the region should be considered. In addition, since greater self-efficacy would allow employees for more confidence in their ability to use technology based systems, and therefore ease of use will not be as important to them as to employees with less confidence in their own abilities. Hence, the relationship between ease of use and attitude will be attenuated with greater self efficacy. Consequently, further researcher should consider the moderating role of self efficacy in such relationship.

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