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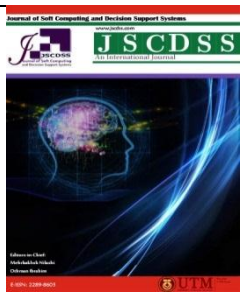

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The Relationship between Task Technology Fit and Individual Performance: Case Study in Hotel Industry in Malaysia

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Abstract

Associations require helpful performance from individual to reach their purposes. In todays of modern technology it is essential and very important to understand performance in the information technology (IT) area. This study brings up a problem that individual performance success could be enhanced by complementing other elements. This research examines the success of individual performance by task-technology fit theory. This study aims to investigate which task-technology fit elements are able to explain and improve the individual performance. The findings show that the TTF explains, improving personal performance of employees will cause higher level of organizational performance in hotel industry. In this research from eight factors of task technology fit three factors support, which are Quality, Authorization and Production Timeliness. Employee with high performance will provide better services for customers and this will increase customer satisfaction. This study provides solutions for employers of hotel industry in Malaysia to improve the performance of the operational employees, which eventually increases the performance of the hotel industry in Malaysia. As a result, the hotels will deliver better services to the customers, in order to compete with other hotels in Malaysia. In addition, delivering high quality services provides customer satisfaction, which significantly contributes to business performance. Moreover this will cause repeating travel to the same destination, purchase repetition and potential increased future patronage of the hotel.

Keyword: Task-Technology Fit, Individual performance, Information technology

1. Introduction

In recent years, there is increasing permanent growth in global investment in information technology (IT) area. According to (Alvarez, 2013), this investment will reach to 3.7 trillion dollars in 2013, which is a 4.2% increase over year 2012. This annual investment in IT aims to achieve the success of organizational objectives (Petter et al., 2008), that has positive influence on individual performance (Bravo et al., 2015; Gable et al., 2008). With the proliferation of information technologies, organizations have increasingly implemented technologies to improve their efficiency and effectiveness. Technology now plays a critical role in supporting and facilitating work processes in different industries and sectors (West, 2004). The use of technologies has fostered both work independence and collaboration. Workers are now able to work asynchronously by accessing common databases through intranets and extranets and connecting with others to gather knowledge only when they encounter unanticipated problems. In addition with proliferation of information technologies, organizations have increasingly implemented technologies to reorganize work tasks and facilitate collaboration at work (Brown et al., 2004; Chan, 2010; Morris and Venkatesh, 2010) so technologies can be considered as instruments in carrying out individual tasks (Goodhue and Thompson, 1995). Nowadays, the environment of manufacturing organizations is increasingly being complex and difficult since high standards of performance are demand by customers. Furthermore, new competitors make some troubles for the structures of industry, so employees need more work, better conditions, more incomes, and broader career paths. Government policies and regulations also effect on changing societal attitudes and expectations in these areas such as equal opportunity, sustainable development, and occupational health and safety. However, new technologies influence on products, marketplaces, and industries (Challis et al., 2005). At the workplace, in-role and extra-role are two dimensions of employees' performance (Brief and Motowidlo, 1986; Williams and Anderson, 1991). In-role action is an employee's performance to achieve the formal necessities of his job, and extra-role action indicates employee activities outside the formal job descriptions under their own pleasure (Williams and Anderson, 1991). The performance of employees in hospitality industry has significant contribution for countries, which have numerous numbers of tourists every year. Malaysia, which is a very

touristy destination for people around the world and attracts numerous numbers of tourists every year, is one of these countries. Travel and tourism contribute significantly in Malaysian GDP. This contribution was (14.9% of GDP) in 2014, and is forecast to rise by 5.3% in 2015, and to rise by 4.5% pa to (15.8% of GDP) in 2025. The hotel industry in Malaysia has been tremendous growth due to the increasing number of tourists who visit the country annually. The service from the hotel must meet certain criteria and provide services that tourists can get the best experience and be satisfy about hotel services. As such, there is a need for the organization to increase the quality of service, in particular in relation to the performance of employees. The services provided by hotels must meet the criteria. Therefore, the organization must strive for the quality of services, especially in terms of staff and employees (WTTC, 2014). Recently, some strategic matters such as frontline customer service technology attract the attentions of many academic research and trade journals. Investigating the relationship between usage of technology and outcomes are very important to explore how IT helps to achieve desirable results. The technology must be utilized to reach IT-based productivity to achieve the desirable results. Therefore, the recommended nomological framework in this study is needed a theoretical understanding of information systems or information technology utilization and employee performance. The review of other studies shows that many different models have been improved to identify IT usage. The Technology Acceptance Model (TAM) is one of the most commonly tested models introduced by Davis et al. (1989) and this model aims to explore how people accept using of IT and how the use of IT supports their performance. According to Alter (2004), customer relationship management (CRM) and sales force automation (SFA) use have a disabling influence on individual performance. On the other hand, Ko and Dennis (2004) proposed that SFA use is related to performance directly and it has greatest benefit for individual with high technological knowledge. Making a connection between the various types of utilization, and their matching influence on performances of any theoretical level (Sundaram et al., 2007). According to Kwon and Zmud (1987), "no clear precedence relationship exists among use, performance, and satisfaction, it seems reasonable to suggest that all are preceded by acceptance in at least two cases: when use is voluntary, and when performance is dependent on committed, rather than vapid use." Investigating the process of acceptance is not the scope of this study but Kwon and Zmud (1992) stated that performance is based on "committed" use is different from "vapid" use. Kwon and Zmud proposed the concept of weak versus strong usage. They also stated that "the extent to which the expected benefits of an innovation are realized is largely reflected in the success by which an innovation has been incorporated within the organization's operational and/or managerial work system" (Honeycutt et al., 2005; Rangarajan et al., 2005; Sundaram et al., 2007).

2. Literature review

One of the models that lead technologies to better performance is Technology to Performance Chain (TPC) model. This model affected the individual level. Through the review of literature, technologies should be used and be suitable for the task affected performance. TPC model presents precise picture of how technologies use to make changes in performance. Individuals used technologies for doing their tasks. Based on the IS research, technology is computer systems such as software, hardware, and data and it also refers to user support services such as help lines and training. Furthermore, technology support users in their tasks so the proposed model focus on the impacts of a certain system or the full set of systems, services and policies the IS department offered. Tasks are generally defined as the actions that individuals done to turn inputs into outputs. The task features contain individuals to trust more on certain aspects of the IT. For instance, the necessity of responding wide variety questions about company operations would help a user to trust the capacity of information system to process queries against an operational information database. Technology may use by each person to assist doing his/her tasks. Individual characteristics such as computer competency, training, and motivation could effect on how well and easily the technology is utilized. Therefore, a degree that technology assists an individual to do his tasks is task-technology fit (TTF) (Aguinis et al., 2011). TTF is the interactions between individual abilities, task needs, and the technology functionality. The ancestors of TTF are the correspondence between technology, task, and individual. Certain types of tasks demand certain types of technological functionality. For instance, interdependent tasks involving information from many organizational units requires integrated databases with all related data. TTF is reduced when the gap between the task necessities and the technology function. On the other hand, this study stated that TTF will decrease when tasks are necessary with less functionality of technologies, if no system suggest complete data for complicated task needs with no effort (Chan, 2010; Goodhue, 2006; Goodhue and Thompson, 1995). Utilization can be defied as the action of applying the technology to fulfil a task. It measures through the number of use or the variety of applications that have been used. On the other hand, the construct is doubtful, and aims to improve the conceptualization that should be based on a suitable reference discipline. As the lower quantity of the TPC model is resulting from other theories on attitudes and behavior, it can be considered as a suitable reference discipline. Those theories define the usage of a certain system for a single defined task. Individual make decision whether use the system or not based on affected toward use, social norms and viewpoints on the consequences of use. Therefore, utilization can be conceptualized as the dual condition of using or not using. The usage of system at single defined task depends on the TTF of the system or the length of use, not the chosen system. If the focus were extended to a range of tasks in a field study of using IS, a

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suitable conceptualization is the amount of time that the individual use the system. It should be consider that this procedure is different from conceptualizing utilization when the frequency or amount of time is important to choose which a system is chosen to use. It helps to figure out if an individual choose to use a system three times means that there are four tasks, or 20 tasks. As described, before this, the utilization was suggested by theories on behavior and attitudes. The model shows both mandatory and voluntary utilization. Mandatory use can apply when social norms of using system are overpowered and very stronger than other thoughts such as attitudes about expected influences and consequences. The influence of TTF on usage can be shown through making a connection between beliefs and task-technology fit on the significances of using a system since TTF is an main determinant of whether systems are important and useful or not. As the model indicates, all of these related theories tries to predict usage of systems so that they are not just determinant (Bravo et al., 2015; Chan, 2010; Goodhue, 2006; Goodhue and Thompson, 1995; Sundaram et al., 2007). Moreover, in this context, performance influence on the achievement to a variety of individual tasks. Higher performance indicates some mix of higher quality and/or improved effectiveness. High TTF not only increase the possibility of utilization, but also it improves the system performance. Besides, it increases the performance of any system because it meets the task requirements of the individual (Bravo et al., 2015; Chan, 2010; Goodhue, 2006; Goodhue and Thompson, 1995). A conceptual technology-to-performance chain model explains the relationship between individual performance and IT utilization. This framework was established on two different study area: the IT use with its former behavior and attitude, and the "fit focus" evident, which in study examining the IT user's performance. According to Venkatraman (1989), "fit" evaluation in study is with six different approach and perspectives such as moderation, mediation, matching, gestalts, profile deviation and co variation. 1) Mediation perspective, which is presence of intervening outcomes between a consequent variable and its antecedent variable. 2) Moderation perspective refers to being moderator in an independent variable on dependent variable. 3) Matching perspective that matches two related variable together. 4) Profile deviation; it refers to the degree of loyalty to a certain profile. 5) Gestalts; it considered as the level of internal consistency among entire set of theoretical characteristics to identify several group. 6) Co variation; it is an outline of internal reliability between a set of related theoretically variables. Among all above perspectives, the first two are more frequently utilized than others (Goodhue, 2006; Goodhue and Thompson, 1995; Hari Suryaningrum, 2012; McGill and Hobbs, 2006; Teo and Men, 2008). Fit as moderating variable was proposed by Goodhue and Thompson (1995), they stated that: "information system (systems, policies, staff of IS, etc) have a positive impact on performance only when there is a correspondence between their functionality and the task requirements of users." The findings showed the TTF as a purpose of task, system characteristic, and performance. Although TTF shows some supporting evidences, several studies extend TTF with TAM in some areas such as consumer of education (Strong et al., 2006), e-Tourism (Usoro et al., 2010), e-commerce (Klopping and McKinney, 2004), conceptualization perspective (Dishaw et al., 2002), and hotel industry (Schrier et al., 2010). These researches carried out to achieve more complete explanation about behavior of human through use of IS. The new individual performance model aims to combine Decomposed Theory of Planned Behavior (DTPB) with TTF since TAM has a strong and simple model and DTPB is comprehensive to show IT usage. The symbolic interactionism and sociology theory are used to improve the coherence of these two models. Alongside, TTF is chosen because of its theoretical assumption that IT has a positive influence on individual performance and utilized when it is potentials to match the task (Goodhue, 2006; Goodhue and Thompson, 1995; Hari Suryaningrum, 2012).

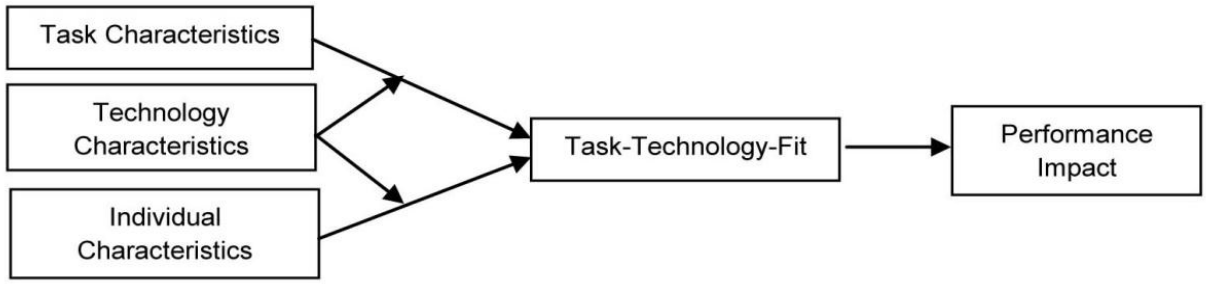

Fig. 1. Task-Technologies Fit Model (Goodhue, 2006; Goodhue and Thompson, 1995; Hari Suryaningrum, 2012)

Fig. 1 shows the Task-Technologies Fit (TTF) model, TTF model plays an important role in IS theory, which assumed that IS will be employed when the IT capabilities match the task, which have a positive effect on an individual performance (Goodhue and Thompson 1995). Goodhue and Thompson (1995) suggested the fit between task features and IS characteristics to create a conceptual foundation to examine the decision-making attribute. System information providing information to helps users to perform their tasks individually. As result, individual performance and IT has strong relationship (McGill and Hobbs, 2006; Teo and Men, 2008). On the other hand, the fit between IT is utilization (Strong et al., 2006) that provides information for users to carry out the task. Therefore, TTF theory proposes a better fit between technology and task to achieve performance. According to

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Goodhue and Thompson (1995), constructing a laboratory environment to perceived better performance is very important in which the propositions and model can be tested with performance (Goodhue, 2006; Goodhue and Thompson, 1995; Hari Suryaningrum, 2012). The connection between performance and IT is topics of many IS researches. The present study aims to propose and examine new and comprehensive model for this connection through two different areas of research such as user behavior as predictors of applying, task-technology fit as a predictor of performance. This model named the Technology to Performance Chain (TPC) that helps IT to have a positive influence on individual performance (Goodhue, 1998; Goodhue, 2006; Goodhue and Thompson, 1995; Schrier et al., 2010; Strong et al., 2006).

Goodhue and Thompson (1995) conducted a study to exploring the relationship between the task requirement, the system function, the user and system influence on usage. Performance is when the technology meets the users' requirements and builds characteristics that help the required fit of the task (Goodhue, 1998; Goodhue, 2006; Goodhue and Thompson, 1995; Hari Suryaningrum, 2012). The most common complementary research stream is TPC based on the "utilization focus" stream. TPC utilizes user beliefs and attitudes to predict the use of IS (Goodhue, 1998; Goodhue, 2006; Goodhue and Thompson, 1995). The majority of studies worked on the utilization based on theories of behavior and attitudes. Technology features such as chargeback policies or high quality systems effects on the user attitudes about systems, which is useful or user information satisfaction. Finally, the user attitudes along with social norms motivate users whether to utilize systems or not. Therefore, the implication increases utilization that leads to positive impacts on performance. There are a few researchers have focused on utilization and proposed that performance impacts will outcomes of task-technology fit. It happens while a technology "fit" the need of a task and offers some characteristics and helps. The "fit" focus is obvious in study of the effect of tables versus graphs on individual decision-making performance. The findings of two studies indicate the impact of data on performance based on fit with the task through a series of laboratory experiment. Finding of another study shows the mismatches between a technology feature and tasks make decision-making performance slow through demanding further changes between decision processes or data representations.

The others study investigate strong relationship between performance and "cognitive fit" in laboratory tests. This case is created for a "fit" theory of tasks, systems, individual characteristics, and performance (Goodhue, 1995). The objective of this research is that IS (policies or systems) and IS staff has a positive effect on performance when the task needs of users and functionality is connected to each other. There is also recommended a linkage between utilization and fit. Utilization, "fit" and acceptance has also been linked at the organizational degree (Goodhue, 1998; Goodhue, 2006; Goodhue and Thompson, 1995). A "system/work fit" is a strong predictor of managerial electronic workstation, which is used at the individual level (Dishaw et al., 2002; Goodhue, 1998; Goodhue, 2006; Goodhue and Thompson, 1995; Usoro et al., 2010). The TPC model shows that IT has a positive influence on performance. DeLone and McLean (1992) proposed that the Technology to Performance Chain model is consistent in user attitudes and with DeLone and McLean model. First, it focuses on the significance of task technology fit in describing how technology results to performance. In many previous models, task technology fit is a critical construct that was implicit or missing. Second, the model is explicit focus on the connections between the constructs, which offering a greater theoretical foundation for numerous issues that are affecting IT on performance. These contain: choosing replacement measures of management information systems success that change organizational effectiveness, describe as improved productivity, net utility of a means of inquiry or higher relative value and utility in decision making. Additionally, it effects on the investigating the effect of user performance, and improving better solution for information system problems (Dishaw et al., 2002; Goodhue, 1998; Goodhue, 2006; Goodhue and Thompson, 1995; Usoro et al., 2010).

Usefulness is a concept that means the level of information system that develops the individual performance. According to DeLone and McLean (1992), usefulness is defined as the information quality, which is comprehensible, relevant, complete and timely and the information system quality such as flexibility, reliability, ease of use, and mediated by the use of the user satisfaction and information system. According to Goodhue and Thompson (1995), usefulness is the fit and the information system usage between the task demands and how the information system encounters them, which is translated into features such as reliability and ease of use of the technology and the information is detailed and up-to-date levels. These models have been used frequently in the literature and continue to be foundation for ongoing research (Dishaw et al., 2002; Goodhue, 1998; Goodhue, 2006; Goodhue and Thompson, 1995; Urbach et al., 2009). Based on the systemic perspective, literature related combined and the industrial psychology to the influence of technology to outline the relationships and constructs to clarify performance.

A systemic perspective emphasizes on the set of components such as individual, task, technology and their relationships that influence on performance. Lyytinen and Newman (2008) proposed that if the components are not associated together, the outcomes could lead to deterioration in performance and be less predictable. Alongside, Alter (1999) reported that an appropriate task performance is based on the fit of its components. For example, when an individual knows the activities and when the technology is suitable for supporting the task, the fit occurs. The review of related studies on the technology impact has shown that the ease and the efficacy of the information system are suitable features for their technology success models (Bravo et al., 2015; Goodhue, 1998; Goodhue, 2006; Goodhue and Thompson, 1995;

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Lyytinen and Newman, 2008)). According to Goodhue and Thompson (1995), performance improvement shows greater proficiency or individual effectiveness. An appropriate technology has great influence on performance same as the eases of information system for individual task. The technology as a factor of 'tools' can increase or reduce individual performance for industrial psychology. According to Blumberg and Pringle (1982), if tools are not appropriate in an organization may have skilful and motivated staff, it cause failure or elimination of production. Seddon (1997) stated that information system is suitable since help to carry out the same quantity and quality of work in less time or assisting the user to carry out better performance at the same time. From the systemic perspective, the levels of technology provide information and/or automating activities determine the influence of the information system on performance. Achieving these roles can be used as the individual assessment on the effectiveness of a technology for doing the tasks. According to Davis (1986, 1989), ease of use technology leads to perception of usefulness increases and in consequence improvement in performance. It means that the worker will be more productive in that quantity of time if the user will. The review of study shows many researches that empirically create a relationship between ease of use and usefulness of information system. Rai et al. (2002) found a positive connection between these two component on academic information system (Bravo et al., 2015; Goodhue, 1998; Goodhue, 2006; Goodhue and Thompson, 1995; Lyytinen and Newman, 2008; Sundaram et al., 2007). The utilization research stream fails to consider that technology utilization is not always voluntary.

In many cases, it can be more a function of how a particular job is designed, rather than on its quality or usefulness. The more involuntary the usage, the more the performance impacts will depend on factors relating to fit. Even when utilization is voluntary, other factors may have an influence (e.g. social factors, habit, and availability), which will not necessarily improve performance if the system is poorly designed. The primary limitation of the fit focus alone is that it does not sufficiently account that systems should be used before outcome has influences on positive performance (Goodhue and Thompson, 1995). The integrated, proposes a comprehensive picture of new model on how user tasks, utilization, and technologies cause changes in performance. The concept of task-technology fit in this model is "the degree to which a technology assists an individual in performing his or her portfolio of tasks" (Goodhue and Thompson, 1995). Among individual abilities, task requirements, and the functionality and interface of the technology, TTF is another way of putting task-technology fit. As such, TTF encompasses a three-way relationship, and could really be conceptualized as task-individual-technology fit although the author(s) prefer the simpler label for the construct (Goodhue, 2006). The main characteristics of the TPC are tasks, utilization, technologies, individuals, and antecedents of TTF, task technology fit, and antecedents of utilization. In a preliminary study of the core model, including a variety of technologies, Goodhue and Thompson (1995) proposed a model at a high level of generalization (Bravo et al., 2015; Goodhue, 1998; Goodhue, 2006; Goodhue and Thompson, 1995; Lyytinen and Newman, 2008; Sundaram et al., 2007). Mathieson and Keil (1998) carried out the study to examine the relationship between and the level of individual perceives a system easy and task-technology fit to use in a lab study involving undergraduate business students. The findings showed that perceived ease of use was a purpose of task-technology fit, and that neither task alone nor information systems alone, was adequate to predict performance. Eight dimensions of TTF, the operational definition of each dimension is as follow: 1. Quality: the using data is enough for individual requirements, 2. Authorization: achieving approval to access data for their job, 3. Locatability: determining what data is available and where, 4. Compatibility: different sources data can be compared or consolidated without inconsistencies, 5. Systems Reliability: consistency and dependability of uptime and access of systems 6. Production Timeliness: IS provides pre-defined production improvement schedules, 7. Relationship with Users: How does IS understand individual unit's business task and its association to support purposes, 8. Ease of Use / Training: simplicity of how employees want to use system software and hardware for analyzing data, accessing, submitting (Bravo et al., 2015; Goodhue, 1998; Goodhue, 2006; Goodhue and Thompson, 1995; Lyytinen and Newman, 2008; Sundaram et al., 2007).

3. Methodology

A quantitative approach is used in this study for data collection and analysis. This approach allows replicability, objectivity, and produce outcomes that are more descriptive and generalizable across setting while allowing the study carry out on relationships between variables with level of accuracy needed for creating social trends (Benini et al., 2000). Therefore, quantitative approach supports the empirical testing of the hypotheses and the conceptual model for this study. The purpose of this study is to investigate the association between the individual performance and task technology fit. The population was general managers and assistant general managers of hotels in Malaysia. The sample was drawn from 95 five-star hotels located in Malaysia where general managers and assistant general managers were working, using multi-stage cluster sampling technique. A self-administered survey was conducted to reach a widespread sample of respondents to collect data (Fricker and Schonlau, 2002). It recorded advantages such as accessing to unique or large populations, ease of administering, saving in both cost and time and recording questions and answers and disadvantages of research such as, determining whether the respondents are loyal, lack of control on the time and details information because of no interviewer intervention available for explanation (Fricker and Schonlau, 2002). There are several ways of conducting quantitative survey-based research such as interview-completion, self-

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administered, and observation (Hair et al., 2003). There are some types administered surveys such as Internet survey, mail surveys, and drop-off / pick up. The majority of self-administered surveys employ a structured questionnaire that propose a set of questions (Hair et al., 2003) that the respondent can answer the survey questions and record them without the presence of an interviewer. In the current study, the internet and drop-off survey was used. Drop-off method is the method that the researcher travel to the respondent's location and hand-delivering survey questionnaires to respondents (Wilkinson and Birmingham, 2003). The representative or the researcher will collect it when the survey is completed. This method has two advantages, first, the presents of a person to respond any questions and second is the ability to create interest in questionnaire conclusion through informal interaction of interviewer with the respondents. Nine instruments measuring such as authorization, ease of use/training, locatability, quality, compatibility, systems reliability, production timeliness, and relationship with user and individual performance are used in this study. Structural Equation Modelling (SEM) also was used after data collection. Using SEM method use several indicator variables per construct concurrently that results to more valid conclusions (Hair *et al.*, 2010). Confirmatory factor analysis for each construct was carried out to determine the discriminant validity and convergent. Finally overall measurement and structural models were tested, using PLS software. Population of the current study was all general managers and assistant general managers working in hotels in Malaysia. Table 1 shows the list of hotels in each state in Malaysia in 2014, which are 2,628 hotels in Malaysia.

Table 1

Hotel industry in Malaysia 2014

HOTELS 2014	
States	Hotels
Perlis	29
Kedah	102
P.pinang	121
Perak	188
Selangor	222
N.sembilan	109
Melaka	207
Johor	233
Pahang	250
Kelantan	126
Terengganu	29
Sabah	386
Sarawak	240
Kuala lumpur	247
Putrajaya	5
Labuan	34
Malaysia	**2,628**

*Source: World Travel and Tourism Council (WTTC, 2014)

Multi-stage cluster sampling was used for sampling procedure as the population (assistant general managers and general managers) was at hotels in Malaysia so that simple random sampling was difficult to conduct. The location where general managers and assistant general managers work that was divided up into five clusters including one-star to five-star hotels at the first stage. A sample of five-star hotel was randomly selected as the survey cluster. After determining the five-star hotels, a stratified sampling method was adopted to divide the entire target population (i.e. general managers and assistant general managers) into two strata, i.e. male and female to select appropriate numbers of male and female general managers and assistant general managers working in each hotel.

The HR department in each hotel handed the researcher the number of male and female general managers and assistant general managers. This ensured that the researcher has adequate amounts of subjects from each stratum in the final sample. Lastly, subjects were selected as final subjects proportionally from the one of the two strata, using simple random sampling method, which assured that each subject in the population since all has a same chance of being in the sample. A sample refers to a sub-set of the population selected for a particular study (Burns and Grove, 1999). In other words, individuals who take part in the sampling process to present a certain population that is being researched are referred to as the sample size. Information that is obtained from the sample size could be used to estimate on the outcome of research population that is being researched.

According to HR of each hotel, there are 500 general managers and assistant general managers working in these five star hotels. The TTF (Goodhue and Thompson, 1995) comprises of 34 items. TTF is also one of the most important constructs that studied cross culturally and one of the most frequently studied variables. Task Technology Fit surveys have eight parts, which are Quality (6 items), Locatability (4 items), Authorization (2 items), Compatibility (3 items), Production Timeliness (2 items), Ease of Use/Training (4 items), Relationship with Users (4 items) and Systems Reliability (3 items). Five-point Likert scale is used for evaluation these items from Strongly Disagree (1) to Strongly Agree (5). To measure individual performance, 6 items were adopted from (Lynch et al., 1999). Among other scales, researcher identified that Lynch et al.'s individual performance measure (1999) was more suitable for the current study as it included items measuring in-role and extra role performance. There were three items are used for assessing in-role and three items for extra-role performance of employees. Participants were asked to respond descriptive items base on their experience through a 5-point Likert-type scale.

The validity of the instrument for quantitative data refers to which the research variables such as individual performance and task technology fit are accurate, stable and whether they measure correctly. Therefore, this study is considered two different types of validity: construct and content validity. Inferential and descriptive statistics were

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used in this current research. PLS and statistical package for the social sciences (SPSS) is used to analysis the collected data from the survey. PLS is used to help the researcher in testing theoretical models (Byrne, 2010). Descriptive statistics, Confirmatory Factor Analysis (CFA), and Structural Equation Modelling (SEM) analysis was used to analysis data. SEM is a more general method for investigating the relationships among variables. It is an extension of several multivariate techniques and as a more advanced data analysis technique (Hair et al., 2010). It is a powerful statistical tool in mediation studies and also applied to assess indirect and direct relationships among variables (Hair *et al.*, 2010; Ho, 2006). Furthermore, a two-step procedure using confirmatory factor analyses and SEM was utilized to evaluate the mediating effect of variable (Anderson and Gerbing, 1988).

4. Results And Discussions

The relationship of the two factors has a profound effect on the microscopic properties and macroscopic structure of the gel in toluene. The unit of analysis in the current research is hotels in Malaysia. The total number of registered hotels in whole Malaysia is 2,628, as reported by tourism Malaysia, World Travel and Tourism Council (2014). To collect maximum required data, the research was focused on general managers and assistant general managers in five star hotels. The list of five star hotels, which are located in ministry of tourism, is extracted from ministry of tourism Malaysia. The internet and drop-off survey was used in the sampling technique to collect the data which are kind of self-administered survey (Wilkinson and Birmingham, 2003). The respondents of the current study were general managers and assistant general managers. In order to get effective data, both online survey and hard copy questionnaire was prepared. In addition, several follow-up actions through direct visits, persuasion over e-mails and phone calls were facilitated to end up with the achieved rate. A total of 500 questionnaires were distributed and 183 (36.6%) sample questionnaires were received from general managers and assistant general managers of five star hotels. Out of 183 samples, 167 samples were usable for the purpose of analysis. Table 2 shows the respondent rate for the current study.

Table 2
Response Rates

No. of Distributed questionnaires	No. of received data	No. of usable data	Percentage
500	183	167	36.6%

Based on Table 2, the statistical analysis for the current research is associated with 167 respondents. The sample size of 167 cases is sufficient for data analysis following the rules of thumb for defining sample size. In multiple regression analysis, the sample size can be greater than 30 and less than 500 are for multivariate study. (Roscoe, 1969; Sekaran and Bougie, 2010). The minimum sample size needed in multivariate research to perform PLS-SEM should be 10 times the maximum number of arrows heading to a point of the endogenous latent variable (Hair et al., 2013). Table 3 has shown that the most of the respondents were male. Table 4 also is shown that the frequency of respondents based on their age, 73 respondents (43.7%) have 36 to 45 years old. Moreover, Table 5 shows that most of the respondents were married (93.4%). As shown in Table 6, majority of respondents had bachelor's degree (83.8%). Table 7 shows the employment status of the respondents. The result shows that 73.7% of respondents were permanent employees. Table 8 shows the frequency of range of wages among respondents. The result shows that the wages of 63.5% of respondents is between RM5,001 to RM6,000. Finally, Table 9 shows the frequency of respondents based on their work experience. The result shows that the work experience of 56.9% of respondents is between 12 – 17 years.

Table 3
Frequency of Respondents Based on Gender

Gender	Frequency	Percentage	Cumulative Percentage
Male	139	83.2	83.2
Female	28	16.8	100
Total	167	100	

Table 4

Frequency of Respondents Based on their Age

Age	Frequency	Percentage	Cumulative Percentage
25 or less	0	0	0
26-35 years	22	13.2	13.2
36-45 years	73	43.7	56.9
45 and above	72	43.1	100
Total	167	100	

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Table 5

Frequency of Respondents Based on Marital Status

Marital Status	Frequency	Percentage	Cumulative Percentage
Single	11	6.6	6.6
Married	156	93.4	100
Total	167	100	

Table 6

Frequency of Respondents based on Education

Education	Frequency	Percentage	Cumulative Percentage
Under Diploma	0	0	0
Diploma	0	0	0
Post-Diploma	5	3	3
Bachelor Degree	140	83.8	86.8
Master Degree	22	13.2	100
Doctoral Degree	0	0	0
Total	167	100	

Table 7

Frequency of Respondents based on Employment Status

Employment Status	Frequency	Percentage	Cumulative Percentage
Permanent	123	73.7	73.7
Contract	44	26.3	100
Other	0	0	0
Total	167	100	

Table 8

Frequency of Respondents based on Wages

Wages	Frequency	Percentage	Cumulative Percentage
RM3000 or less	0	0	0
RM3001-RM4000	0	0	0
RM4001-RM5000	0	0	0
RM 5,001 - RM 6,000	106	63.5	63.5
RM 6,000 and above	61	36.5	100
Total	167	100	

Table 9

Frequency of Respondents based on Work Experience

Work Experience	Frequency	Percentage	Cumulative Percentage
5 years or less	0	0	0
6 – 11 years	62	37.1	37.1
12 – 17 years	95	56.9	94
18 years and more	10	6	100
Total	167	100	

Convergent validity shows the level of multiple items in the study to estimate the same concepts that are in agreement (Hair et al., 2013; Ramayah et al., 2011). According to Hair et al. (2009), convergent validity is evaluated reflective scale measurements through factor loadings of composite reliability (CR) and average variance extracted (AVE). The factor loading of items should over the suggested value of 0.5 cross loading and main loading of items were tested to ensure the reliability (Hair *et al.* (2013). According to Hair et al. (2013), the question items with value of 0.5 and above. AVE criterion is the grand mean value of the indicators squared loadings that is related to the construct, which is at least 0.5 and higher that shows a latent variable is more than half of the variance of its indicators on average so adequate (Hair *et al.*, 2013; Henseler *et al.*, 2009). AVE is above 0.50, it shows that the

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variance shared with a construct and is greater than error. The AVE for each latent variable in the current study was greater than 0.50 (Ashill *et al.,* 2005). In order to evaluate the consistency of the measurement items, composite reliability (CR) is used in the study. CR is a measure of internal consistency, and shows a block is considered as homogeneous (Barroso et al., 2010). For PLS-SEM, CR is more appropriate than Cronbach's alpha, that arranges indicators based their reliability through estimated model (Hair et al., 2011). The CR value should be higher than 0.7 (Hair *et al.* (2011). The result of this study also showed that CR is more than 0.70 for each variable. Therefore, for reflective scale measurement, the convergent validity is achieved. Convergent validity for formative scale measurement is measured by multicollinearity of indicators, testing the indicators weight and significance of weight (Hair *et al.,* 2012; Becker *et al.,* 2012; Chin and Newsted, 1999). The proposed indicator weights is >0.1 (Lohmöller, 1989) or 0.2 (Chin, 1998). Hair *et al.* (2013) proposed that an importance level at least 0.05 showed that an indicator is appropriate for the formative index construction. To determine the level of multicollinearity, Variance Inflation Factor (VIF) is used as indicators' information that can be redundant because of high level of multicollinearity (Hair et al., 2011). VIF assessed the degree of multicollinearity as a formative indicators that should be below 3.33 (Diamantopoulos and Siguaw, 2006), above 3.33 shows that multicollinearity exists in the formative measures. The VIF value should also be lower than 5 or 10 (Hair *et al,.* 2013). Table 10 and Table 11 show a summary of criteria that shows the validity and reliability of reflective and formative measurement, respectively.

Table 10

Criteria for Reflective and Formative Measurement

Criterion	Description
Reflective Measurement	
Composite reliability (CR)	The CR value must be higher than 0.7.
Indicator reliability	Absolute standardized loadings must be greater than 0.7. Loadings between 0.4-0.7 can be retained if composite reliability and validity has reached its recommended threshold
Average variance extracted (AVE)	The AVE must be greater than 0.5
Fornell-Larcker criterion	AVE criterion is the grand mean value of the indicators squared loadings that is related to the construct, which is at least 0.5 and higher that shows a latent variable is more than half of the variance of its indicators on average so adequate.
Cross-loading	Another check for discriminant validity is cross-loading. The factor loading of items should over the suggested value of 0.5 cross loading and main loading of items were tested to ensure the reliability.
Formative Measurement	
Indicators' relative contribution to the constructs	Report indicators weight
Significance of weights	Report t-values
Multicollinearity	VIF less than 10. In addition, a bivariate correlation between indicators and construct should be tested in the event of insignificant indictors weights or VIF value exceed the cut off value or both

*Source: Henseler et al. (2009) and Cenfetelli and Bassellier (2009)

Table 11

The Results of Measurement Model for Reflective Constructs

Variables	Type	Items	Factor Loading	AVE	CR
Individual Performance	Reflective	IndPer1	0.745	0.643	0.354
		IndPer2	0.772		
		IndPer3	0.641		
		IndPer4	0.804		
		IndPer5	0.690		
		IndPer6	0.736		

**AVE = Average Variance Extracted, CR = Composite reliability*

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Table 12

The Results of Measurement Model for Formative Constructs

Variables	Type	Items	Weights	t-value	VIF
Quality	Formative	Qul1	0.105	0.567	2.070
		Qul2	0.270	1.577	1.988
		Qul3	0.310	1.593	1.503
		Qul4	0.148	0.822	2.407
		Qul5	0.607	3.55*	2.492
		Qul6	0.224	1.263	2.176
Locatability	Formative	Loc1	0.159	0.411	2.661
		Loc2	0.753	1.85*	2.745
		Loc3	0.729	1.99*	2.221
		Loc4	0.585	1.544	3.573
Authorization	Formative	Auth1	1.026	14.5*	1.856
		Auth2	0.214	0.867	2.032
Compatibility	Formative	Comp1	-0.850	1.109	2.781
		Comp2	0.902	1.245	2.701
		Comp3	0.232	0.642	2.036
Production Timeliness	Formative	ProTi1	0.578	2.36*	5.311
		ProTi2	0.762	3.63*	4.135
Systems Reliability	Formative	SysRel1	0.251	0.958	2.467
		SysRel2	1.018	5.54*	2.420
		SysRel3	-0.224	0.786	2.557
Ease of Use/Training	Formative	Eas1	0.166	0.520	2.082
		Eas2	0.285	0.854	2.275
		Eas3	0.849	3.15*	3.932
		Eas4	0.481	1.575	2.499
Relationship With Users	Formative	Rel1	-0.340	1.311	2.729
		Rel2	-0.152	0.516	2.063
		Rel3	-0.142	0.541	2.343
		Rel4	0.092	0.309	2.780
		Rel5	0.528	2.16*	5.689
		Rel6	0.248	0.905	4.913
		Rel7	0.357	1.403	3.052
		Rel8	0.222	0.785	2.477
		Rel9	0.226	0.974	2.185
		Rel10	0.209	0.945	2.317

VIF = Variance Inflation Factor. **P<0.01, *P<0.05

T-values of the formative items and the item weights are shown in Table 12. In order to achieve indicator validity, the t-values of each item weight should be significant. Some of the indicators in Table 12 showed insignificant item weights. Though, they result to failure in capturing the full essence of the formative construct. This failure comprise all facets of the conceptual domain of a construct that results to elimination of the construct itself (Diamantopoulos and Winklhofer, 2001; Ramayah *et al.*, 2013). Moreover, all VIF values are below 10 that show satisfactory for formative construct.

The second assessment of validity for reflective scale measurement in PLS is discriminant validity to examine whether two conceptually distinct concepts exhibit adequate difference (Henseler et al., 2009). Discriminant validity is used to shows the differentiation between constructs. Therefore, for formative scales measurements, discriminant validity is not needed (Hair et al., 2013). In order to assess discriminant validity, two measures are chosen such as the cross loadings and Fornell-Larcker criterion (Hair *et al.*, 2013; Henseler *et al.*, 2009). In cross loading criterion, comparing with the rest of its cross loadings, the loading of each indicator must be greater to ascertain discriminant validity (Götz *et al.*, 2010; Hair *et al.*, 2013), for the second criterion based on Fornell-Larcker, the adequate discriminant validity is shown through the AVE of each latent variable is greater than the latent variable's higher squared correlation with other latent variable in the model. Table 13 shows discriminant validity of constructs, the result of this study shows that the squared correlations for each construct is less than the average variance, which is extracted by the indicators measuring

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that construct indicating adequate discriminant validity. Thus, the discriminant validity criteria namely similar latent variables are fully satisfied and were classified with high loadings. On the other hand, dissimilar variables were classified with very low loadings. Generally, the model of measurement proposed sufficient discriminant and convergent validity.

Table 13

Discriminant Validity of Constructs - Fornell-Larcker Criterion (Latent Variable Correlation)

	Auth	Comp	Eas	IndPer	Loc	ProTi	Qul	Rel	SysRel
Auth	F								
Comp	0.053	F							
Eas	0.100	0.042	F						
IndPer	0.299	0.184	0.195	0.733					
Loc	-0.086	0.011	0.088	0.127	F				
ProTi	-0.018	0.079	0.045	0.258	0.010	F			
Qul	0.226	0.017	0.114	0.399	0.154	0.021	F		
Rel	0.056	0.117	0.108	0.264	0.240	0.590	0.067	F	
SysRel	0.123	0.158	0.009	0.267	-0.003	0.204	0.173	0.078	F

*Note: Diagonals (in bold) represent the squared root of average variance extracted (AVE) while the other entries represent the correlations. *F: Formative, Auth= Authorization, Comp= Compatibility, Eas= Ease of Use/Training, IndPer=Individual Performance, Loc= Locatability, ProTi= Production Timeliness, Qul=Quality, Rel= Relationship With Users, SysRel=Systems Reliability

In this study, descriptive statistics of the latent constructs refers to values of all the variables to be greater than the midpoint 2.50. Table 14 shows the descriptive statistics of 167 respondents. Individual performance indicated the lowest mean value at 3.00 while locatability showed the highest with a mean value of 4.50. Standard deviation reported the dispersion values were less than 1 in all the variables. In the research model, the association between latent variables that hypothesized is represented by structural model (Duarte and Raposo, 2010). According to (Chin, 2010), the structural portion of the model provide evidence to support the theoretical model is necessary as demonstrated. Three criteria are required to find out the relationships between latent variables that were hypothesized in the study model same as the way of the evaluation of measurement model (Henseler et al., 2009). The criterion is founded on, estimates for path coefficients, R2 of endogenous latent variables, predictive relevance (Q2). The main evaluation criterion for showing the appropriateness of structural model is R2 measure. R2 is the degree of significance of the path coefficients and the coefficient of determination (Hair *et al.*, 2011; Henseler *et al.*, 2009). The main target is to have a higher R2 since the PLS-SEM aims to explain the endogenous latent variance. According to Cohen (1988), R2 having 0.02 - 0.12 is considered as weak, 0.13 - 0.25 is moderate and 0.26 and above is substantial. The decision of what R2 level is high based on the specific research context (Hair *et al.*, 2011). The findings of this research study show that R2 value for individual performance is 0.521.

Table 14

Descriptive Statistics (N=167)

	No. of Items	Min	Max	Mean**	Std. Dev.
Qul	6	3.33	5.00	4.449	0.318
Loc	4	4.50	5.00	4.756	0.167
Auth	2	4.00	5.00	4.575	0.309
Comp	3	4.00	5.00	4.613	0.336
ProTi	2	3.50	5.00	4.671	0.367
SysRel	3	4.00	5.00	4.585	0.344
Eas	4	3.75	5.00	4.540	0.261
Rel	10	3.60	5.00	4.602	0.289
IndPer	6	3.00	4.67	3.755	0.382
Valid N (listwise): 167	40				

**If the mean for each construct is close to the median, it implies that data has tendency to be symmetrical and normally distributed. Since this research predominantly uses Smart PLS, the issue of normality is not relevant (Hamilton, 2013). Comp= Compatibility, ProTi= Production Timeliness, Auth= Authorization, IndPer=Individual Performance, Rel= Relationship With Users, Eas= Ease of Use/Training, Loc= Locatability, Qul=Quality, SysRel=Systems Reliability.

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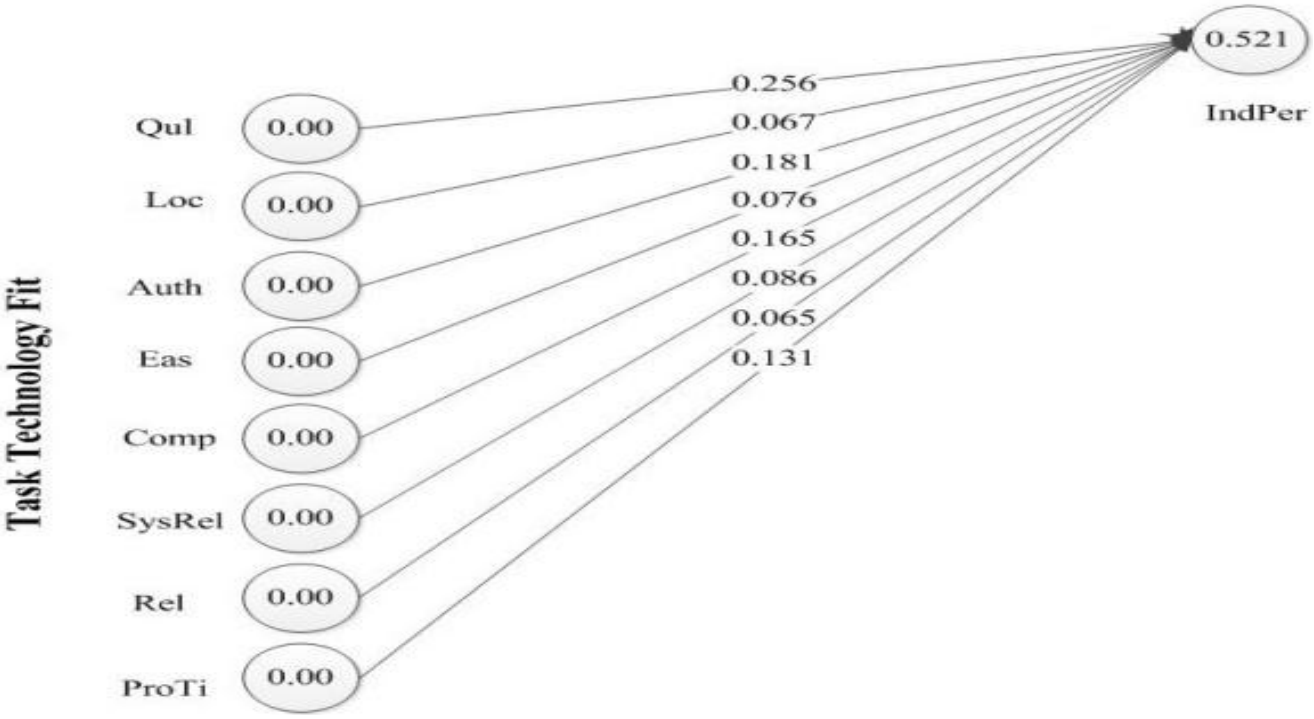

Fig. 2. Coefficients between Independent Variable, and Dependent Variable

Auth= Authorization, Comp= Compatibility, Eas= Ease of Use/Training, IndPer=Individual Performance, Loc= Locatability, ProTi= Production Timeliness, Qul=Quality, Rel= Relationship With Users, SysRel=Systems Reliability

Fig. 2 shows path coefficients relationships between dependent and independent variable. In the PLS structural model, the second criteria is the individual path coefficients that can be considered as standardized beta coefficients of common minimum square regression (Götz et al., 2010). Each path coefficient's value can be retrieved over a bootstrapping method where significant paths indicating the hypothesized direction empirically that support the recommended fundamental relationship or vice-versa (Efron, 1979; Hair *et al.*, 2011; Yung and Bentler, 1994). Bootstrapping in PLS is a nonparametric assessment that contains continues random sampling by replacement from the original sample to achieve standard errors for hypothesis testing and to construct a bootstrap sample (Hair et al., 2011). According to Chin (2010), bootstrapping with 1000 resamples based on the number of re-sampling, while later Henseler et al. (2009) proposed 5000 resampling. The bootstrapping with 5000 re-samples was used to examine the significance of the path coefficients, which have values between -1 and +1. It means if the value close to +1 there is strong positive linear relationship if the value near -1, it shows negative linear relationship (Hair et al., 2013). The last criterion is the evaluation of predictive relevance (Q2). It has identified as the Stone-Geisser's Q2 can be used as a standard to predict relationships likewise considering at the magnitude of the R2. This technique shows a combination of cross function and validation with the view of the potential observable or prediction of observable is more appropriate than the estimation of artificial constructs parameters (Geisser, 1975). Henseler et al. (2009) emphasized to used it for evaluating the capability of research model for prediction purposes. Adaption of this approach in PLS leads to a blindfolding procedure that ignores a part of the data for a specific set of indicators throughout parameter assessments and attempts to evaluation the omitted part utilizing the estimated parameters (Chin, 2010). Q2 assesses the predictive validity of a model based on the blindfolding procedure through PLS. Q2 value is larger than zero and indicates the exogenous constructs that is systematic related to endogenous construct (Hair et al., 2011).

The Results of Structural Model

Eight direct relationships were hypothesized in the current study. The finding shows that three of them have been supported. The results of structural model for direct relationships are shown in Table 15. The result of each direct relationship is explained as follow, separately.

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Table 15
The Results of Structural Model (Direct Relationships)

Hypothesis	Relationship	Bea	SE	t-value	Decision
Direct relationships					
H1	Qul >IndPer	0.233	0.065	3.613**	Supported
H2	Loc >IndPer	0.066	0.068	0.970	Not Supported
H3	Auth>IndPer	0.175	0.055	3.184**	Supported
H4	Comp>IndPer	0.193	0.145	1.328	Not Supported
H5	ProTi>IndPer	0.145	0.060	2.418**	Supported
H6	SysRel>IndPer	0.091	0.059	1.553	Not Supported
H7	Eas -> IndPer	0.042	0.053	0.786	Not Supported
H8	Rel -> IndPer	0.027	0.071	0.383	Not Supported

*Significant at p<0.05, **Significant at p<0.01

Auth= Authorization, Comp= Compatibility, Eas= Ease of Use/Training, IndPer=Individual Performance, Loc= Locatability, ProTi= Production Timeliness, Qul=Quality, Rel= Relationship With Users, SysRel=Systems Reliability

The results of the structural model in task technology fit on individual performance are as follow: H1 – there is a positive relationship between quality and individual performance (β=0.233, p<0.01). Therefore, quality plays an important role in increasing individual performance. H2 – there is not a significant relationship between Locatability and individual performance (β=0.066). H3 – there is a positive relationship between authorization and individual performance (β=0.233, p<0.01). Therefore, authorization plays an important role in individual performance. H4 – there is no a significant relationship between compatibility and individual performance (β=0.193). H5 – there is a positive relationship between production timeliness and individual performance (β=0.145, p<0.01). Therefore, production timeliness plays an important role in increasing individual performance. H6 – there is no significant relationship between systems reliability and individual performance (β=0.091). H7 – there is no significant relationship between ease of use/training and individual performance (β=0.042). H8 – there is no significant relationship between users and individual performance (β=0.027). Path coefficients between independent and dependent variables relationships are shown in Fig. 3.

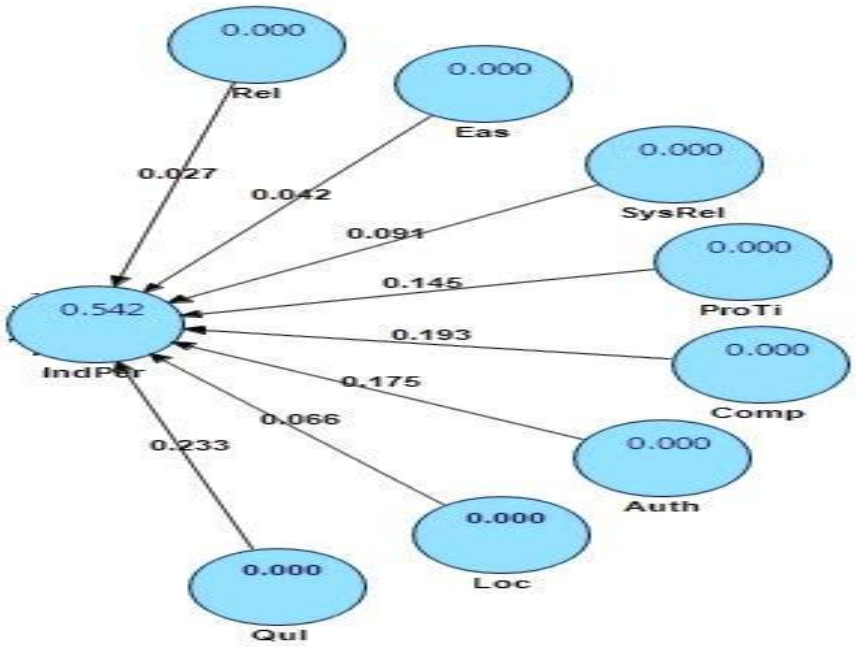

Fig. 3. Path Coefficients

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5. Conclusions

As a summary for this study, the five star hotels of Malaysia and representatives' profiles of the sample were presented. Independent two-group t-test indicated that the effect size was not a threat in this study; the similarities were established between early and late answers and between online and hard copy questionnaires. Furthermore, the result of using the measurement model showed satisfactory by the evidence of convergent validity, adequate reliability, and discriminant validity. In addition the indicators reliability, cross loading and main loading of items also was tested. In following, the structural model was tested. The findings of structural model show that the totals of 3 out of 8 hypotheses were supported. The summary of hypotheses results is shown in Table 16.

Table 16
Summary of Hypotheses Results

Hypotheses	Description	Result
H1	Quality is positively related to individual performance.	S
H2	Locatability is positively related to individual performance.	NS
H3	Authorization is positively related to individual performance.	S
H4	Compatibility is positively related to individual performance.	NS
H5	Production timeliness is positively related to individual performance.	S
H6	Systems Reliability is positively related to individual performance.	NS
H7	Ease of use/training is positively related to individual performance.	NS
H8	Relationship with users is positively related to individual performance.	NS

S=Supported, NS=Not Supported

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