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Research Article

The Unified Theory of Acceptance and Use of Technology (UTAUT) and the Goods and Service Tax (GST) Application System

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Abstract: The objective of this study is to examine the relationship between awareness and adoption of a Goods and Services Tax (GST) application system using the Unified Theory of Acceptance and Use of Technology (UTAUT) model at the organizational level. Questionnaires were distributed among employees of organizations that will be affected by the introduction of the Goods and Services Tax. Data were analyzed using the Partial Least Square (PLS) approach. The results showed that for non adopters, GST awareness is positively related to all of the UTAUT factors except for facilitating conditions. This study was conducted before the Goods and Services Tax is implemented in Malaysia and thus, this study did not determine if these organizations had actually adopted the software. This study observes the adoption of a GST application system, a type of taxation software, which assists firms to comply to the Goods and Services Tax. This study suggests that from the perspective of non adopters, awareness is crucial to the adoption of a new Information Technology system in an organization.

Keywords: Awareness, taxation software, technology adoption

INTRODUCTION

There are several studies (Venkatesh *et al*., 2003; Escobar-Rodriguez and Carvajal-Trujillo, 2014; Oh and Yoon, 2014; Lakhal *et al*., 2013) that focus on the Unified Theory of Acceptance and Use of Technology (UTAUT) in the adoption of new Information Technologies. This particular study focused not only on individual acceptance of technology by using intention or usage as a dependent variable, but also focused on the implementation of technology at the organizational level.

One crucial factor for the successful implementation of a new Information Technology (IT) system is a good level of awareness. Awareness is not confined to the understanding of the IT system but also to general information which may not relate to the IT system specifically. In the case of a goods and services tax, businesses will adopt a Goods and Services Tax (GST) application system when they understand its benefits towards the Goods and Services Tax in general. Thus, this paper contributes to the existing IT literature by examining the influence of general awareness towards factors that relate to Information Technology adoption. This paper also contributes to the tax compliance literature by examining the compliance behavior of taxpayers in a specific area i.e., IT adoption. In GST, the adoption of a GST application system is seen as an initiative to comply with taxation. The adoption of this application system needs to be done at an organizational level. Hence, businesses need to have a good IT system in order to comply with GST obligations.

Goods and Services Tax (GST), also known as the Value Added Tax (VAT), is a multi-stage consumption tax on goods and services. Almost 90% of the world's populations live in countries that implement GST, including China, Indonesia, Thailand, Singapore and India. The Malaysian Government announced effective on 1 April 2015, the Goods and Services Tax (GST) will replace the Sales tax and Service Tax (SST). Unlike the SST, GST is a multistage tax, which taxes the value added at each stage of the business transaction until it reaches the retail stage. Basically, all taxable persons will be required to account for GST based on the accrual basis of accounting, whereby, all output tax and input tax are to be accounted and claimed based on the time when the invoice was issued or received. The introduction of GST requires that businesses have a proper accounting system in place to accurately capture and produce accounting information to reduce errors in their tax declarations. This will result in lesser penalties for businesses. The GST application system is seen as a method of tax compliance.

The immediate challenge for businesses would be to integrate GST into their existing accounting operation system. Companies must now factor the impact of GST into their operations, pricing strategies, cash flow management, finance operations, legal

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contracts, vendors or suppliers and governance or policies. Although the mechanics of GST are relatively straightforward (that is output tax less than input tax), the challenge is in the details of the application system as businesses must also consider the capability of their Information Technology systems to cope with the demands of GST, the need to educate employees and customers, as well as the impact on employee benefits.

The Royal Malaysian Customs Department (RMDC) provides guidance on how to enhance current accounting software to be GST compliant. This guide highlights a set of principles for businesses to adopt in developing or enhancing their accounting software to be GST compliant. Businesses are advised to ensure their software developers follow the recommendation given by the RMDC. The accounting software must be able to generate a standard file known as the GST Audit File. However, recent studies (Saira *et al*., 2010; Palil *et al*., 2013) have shown that the level of awareness among Malaysians regarding GST is still relatively low. Thus this will hamper the adoption of a GST application by Malaysian businesses.

Research framework:

Awareness, IT adoption and compliance: Awareness is very important for taxation. Knowledge provides the taxpayers with the ability to comprehend the need for a new tax reform and this would eventually promote compliance (Saad, 2010). The first step towards inculcating knowledge is to create awareness. Increased awareness of a new tax initiative is essential to gain public acceptance and confidence, particularly in tax situations. As tax involves public expenditure, new tax reform creates uncertainty of future expenditure (Cullis and Jones, 2009). Uncertainty would subsequently initiate resistance towards any government's initiatives to impose new regulations. Thus, it is paramount to educate the public on what is expected from the new tax initiative, to increase their levels of compliance.

Cullis and Jones (1992), as cited in Csontos *et al*. (1998) have highlighted the concept of false awareness in citizens, which are the optimistic and pessimistic views. Optimistic views refer to citizens who 'underestimate the tax load incurred from public services' (Csontos *et al*., 1998). Alternatively, pessimistic views are from citizens who have overestimated tax burdens or inaccurately estimate the public service burden resulting from the tax imposed on the public. These contradictory views have continually provided misconceptions on tax requirements, particularly when a new tax reform is to be introduced. Thus, this raises the need to increase optimistic awareness on what constitutes Goods and Services Tax.

A study conducted by Csontos *et al*. (1998) found that many citizens are not aware of the numerous kinds of taxes levied on them. They have very limited knowledge of government's true expenditures and the cost of public services provided by the state government. This poor awareness has created many misconceptions on the true value of tax. Many have underestimated the tax burden needed in sustaining public services. This situation is also evident in European countries such as the UK (Csontos *et al*., 1998) where majority of the citizens (93%) only recognize income tax as a source of revenue for the government.

In the implementation of Goods and Services Tax, businesses need to be aware of demands that this form of tax would have on their business operations. The interest of this study is to observe whether awareness of the implementation of Goods and Services Tax will contribute to the factors that are influential towards the adoption of a Goods and Services application system. Thus, this study assumes that the adoption of a Goods and Services application system is a step towards compliance. Therefore, awareness is significantly positive to enable influence over all of these factors.

H1: Awareness is positively related to performance expectancy.
H2: Awareness is positively related to effort expectancy.
H3: Awareness is positively related to social influence.
H4: Awareness is positively related to facilitating conditions.

Factors related to Information Technology adoption: User intentions to use an information system and subsequent usage behavior are explained through the Unified Theory of Acceptance and Use of Technology model (UTAUT) (Venkatesh *et al*., 2003). UTAUT accounted for 70% of the variance in behavioural intention and about 50% in actual use towards Information Technology adoption. This model is a combination of the constructs of eight theories/ models that have previously been employed to explain information system usage behavior. These eight theories/models are Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Motivational Model (MM), Theory of Planned Behavior (TPB), a Combined Theory of Planned Behavior (TPB) /Technology Acceptance Model (TAM), Model of Personal Computer Use (PC utilization model), Diffusion of Innovations Theory (IDT) and Social Cognitive Theory (SCT). The consolidations of these eight theoretical models have been proposed to simplify the understanding of factors impacting the acceptance of information technologies. UTAUT is not only useful to observe the adoption of information systems at the individual level but it also observes the successful implementation of an information application system at the organizational level (Venkatesh *et al*., 2003).

The UTAUT model has also been extended by many researchers and is being tested to show the level of success of introductions of new technology. Lin and Anol (2008) postulated an extended model of UTAUT, including the influence of online social support on network information technology usage. They surveyed 317 undergraduate students in Taiwan regarding their online social support by using instant messaging and found that the UTAUT model is a useful model to study the use of online social support (Lin and Anol, 2008). Sykes *et al*. (2009) proposed a Model of Acceptance with Peer Support (MAPS), integrating prior research on individual adoption with research on social networks in organizations. They conducted a 3-month-long study of 87 employees in one organization and found that studying social network constructs can aid in understanding new information system usage (Sykes *et al*., 2009). San Martin and Herrero (2012) explore the process of adoption of new Information Technologies by the users of rural tourism services and, more concretely, the underlying psychological factors of individuals that explain their intentions to make bookings or reservations directly through the websites of the rural accommodations (online purchase intentions).

The UTAUT model proposes four key constructs: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI) and Facilitating Conditions (FC). Constructs PE, EE and SI have direct influence over usage intention and, consecutively, usage behavior, whereby FC directly influences usage behavior. Performance expectancy is the degree to which an individual believes that when he or she uses the system, the system will help him or her improve their job performance (Venkatesh *et al*., 2003). In other words, performance expectancy represents the extent to which using a technology will enable users to improve their job performance. Effort expectancy is the degree of ease associated with the individual's use of the system (Venkatesh *et al*., 2003). Effort expectancy denotes the level of ease associated with the technology use; effort is of great concern to users during their initial use of the system. Performance expectance and effort expectancy were used to replace perceived usefulness and ease of use in the original TAM. Social influence is the degree to which an individual perceives that important stakeholders believe he or she should use the new system (Venkatesh *et al*., 2003). Social influence refers to the level of influence exerted by the individual's social settings which could influence users' intent towards using the technology. Social influence is one of the constructs that directly influences intention to use technology systems. Facilitating conditions represents the level of support and infrastructure present in an organization which could enable system adoption or usage (Venkatesh *et al*., 2003).

Based on the discussion above, the UTAUT is a comprehensive model for this study to examine the factors that contribute to the successful adoption of a new technology system, which is the GST application system. Thus, the proposed hypotheses are as follows:

H5: Performance Expectancy (PE) is positively related to the adoption of the GST Application System.
H6: Effort Expectancy (EE) is positively related to the adoption of the GST Application System.
H7: Social Influence (SI) is positively related to the adoption of the GST Application System.
H8: Facilitating Condition (FC) is positively related to the adoption of the GST Application System.

RESEARCH METHODOLOGY

The study was carried out among employees in organizations in the Klang Valley. According to the rules of thumb, the minimum number of the respondents is a five-to-one ratio of the number of independent variables to be tested. On the other hand, Hair *et al*. (2010) recommended that a ten-to-one ratio is adequate. Non-random convenient sampling technique was used in this study. This is because the list of all elements in the population is unknown and the samples are chosen based on their relative ease of access.

Data collection: The process of data gathering took about four months where 128 well-structured questionnaires were distributed among employees of organizations in the Klang Valley. Sixty-one usable responses were obtained. Hence, the response rate of the survey was fifty percent. The majority of the respondents were executives (45.9%), followed by middle level management (42.6%) and top level management (6.6%). We also performed Harman's one-factor test on items included in our research model to examine for common method bias. The first factor did not account for the majority of the variance, thus we had little concern with common method bias (Podsakoff and Organ, 1986).

Measures of constructs: Twenty one measurement items of five constructs were measured using the seven-point Likert scale whereas the five-point Likert scale was used to measure the remaining five measurement items under the GST awareness variable. All instruments were adapted from a previous study namely Ventakesh *et al*. (2003). Nevertheless, measurement items under GST awareness were self constructed. In addition, a pilot study was carried out with a few randomly selected respondents to ensure the clarity and reliability of the questionnaires.

RESULT ANALYSIS

Measurement model: Validity and reliability were used as the main criteria in testing the goodness of measures. Construct validity is a test on how well the results obtained from the use of the items of measurement fit the theories around which the test is designed (Sekaran and Bougie, 2010). Then, convergent and discriminant validity are used to assess whether the instrument measures the concept as theorized. First of all, the respective loadings and cross loadings in Table 1 were analyzed for loadings of less than 0.5. The following items were dropped due to cross loadings below 0.5 (EE_3, SI_6, FC_1, FC_2, FC_4, BI_2 and BI_3).

After that, the convergent validity was tested. Convergent validity is the degree to which multiple items measure the same concept. To assess the convergent validity, the factor loadings, composite reliability and average variance extracted need to be examined (Hair *et al*., 2010). The factor loading for all measurement items should exceed a value of 0.5 (Hair *et al*., 2010). From Table 1 it can be seen that all of the factor loading of measurement items are more than 0.5. Then, a Composite Reliability (CR) value, which depicts the degree to which the construct indicators indicate the latent construct, should be more than 0.7 as recommended by Hair *et al*. (2010). Table 1 shows that the CR ranged from 0.88 to 1.00. According to Barclay *et al*. (1995), the Average Variance Extracted (AVE) which measures the variance captured by the indicators relative to measurement error should be greater than 0.50. For constructs with multiple measurement items, the examination of average variance extracted indicated that the values ranged from 0.60 to 1.00.

Compeau *et al*. (1999) mention that measurement items should load more strongly on their own constructs than other constructs in the model. By examining the correlations between the measures of potentially overlapping constructs, the discriminant validity of the measures, the degree to which items differentiate among constructs or measure distinct concepts, was assessed. Subsequently, the square root AVE shared between each construct and its measures should be greater than the AVE shared between that construct and other constructs. Table 2 shows that the squared correlations for each construct are less than the average variance extracted by the indicators measuring that construct. Therefore, the measurement model demonstrated adequate discriminant validity.

The Cronbach's alpha coefficient was examined to determine the inter item consistency of the measurement model. Table 3 summarizes the alpha value, loadings and initial and remaining number of items under each constructs. All alpha values are above 0.5 as suggested by Sprotles and Kendall (1986). Other than that, the composite reliability value that ranged from 0.88 to1.00 (which are greater than 0.7) also indicated that the measurement model is reliable.

Table 1: Results of measurement model

Model construct	Measurement item	Loading	CR	AVE
GST awareness	GA_1	0.55	0.88	0.60
	GA_2	0.79		
	GA_3	0.83		
	GA_4	0.87		
	GA_5	0.81		
Performance expectancy	PE_1	0.94	0.96	0.86
	PE_2	0.95		
	PE_3	0.94		
	PE_4	0.88		
Effort expectancy	EE_1	0.96	0.97	0.90
	EE_2	0.96		
	EE_4	0.93		
Facilitating conditions	FC_3	1.00	1.00	1.00
Social influence	SI_1	0.87	0.94	0.76
	SI_2	0.88		
	SI_3	0.86		
	SI_4	0.90		
	SI_5	0.87		
Behavioral intention	BI_1	1.00	1.00	1.00

Table 2: Discriminant validity of constructs

	GST awareness	Performance expectancy	Effort expectancy	Facilitating conditions	Social influence	Behavioral intention
GST awareness	**0.78**					
Performance expectancy	0.42	**0.93**				
Effort expectancy	0.39	0.79	**0.95**			
Facilitating conditions	0.01	-0.02	-0.07	**Single item**		
Social influence	0.51	0.78	0.74	-0.04	**0.87**	
Behavioral intention	0.01	-0.03	0.02	0.70	-0.09	**Single item**

Diagonals (in bold) represent the square root of average variance extracted while the other entries represent the correlations

Table 3: Result of reliability test

Constructs	Measurement items	Cronbach's α	Loading range	Number of items*
GST awareness	GA_1, GA_2, GA_3, GA_4, GA_5	0.83	0.55-0.87	5 (5)
Performance expectancy	PE_1, PE_2, PE_3, PE_4	0.95	0.88-0.95	4 (4)
Effort expectancy	EE_1, EE_2, EE_4	0.95	0.93-0.96	3 (4)
Facilitating conditions	FC_3	1.00	1.00	1 (4)
Social influence	SI_1, SI_2, SI_3, SI_4, SI_5	0.92	0.86-0.90	5 (6)
Behavioral intention	BI_1	1.00	1.00	1 (3)

*: Final items numbers (numbers before item deletion)

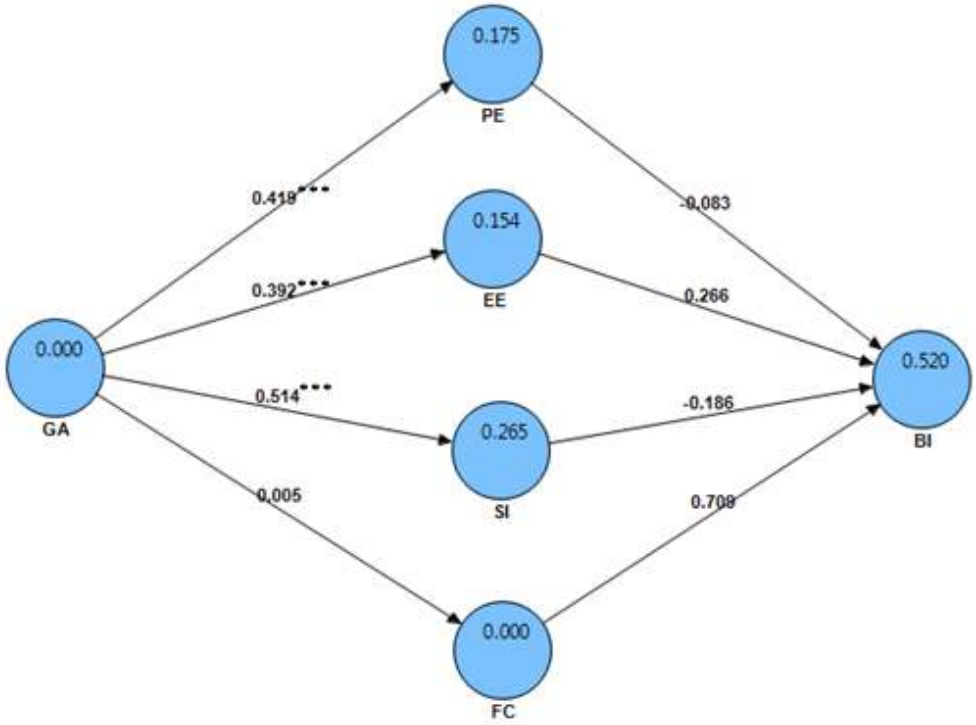

Fig. 1: Results of the path analysis (*: p<0.05; **: p<0.01; ***: p<0.001)

Table 4: Path coefficients and hypothesis testing

Hypothesis	Relationship	Coefficient	t-value	Supported
H1	GA→PE	0.42	4.35	Yes
H2	GA→EE	0.39	3.71	Yes
H3	GA→SI	0.51	5.25	Yes
H4	GA→FC	0.01	0.02	No
H5	PE→BI	-0.08	0.60	No
H6	EE→BI	0.27	1.06	No
H7	SI→BI	-0.19	0.69	No
H8	FC→BI	0.71	1.43	No

Structural model: Finally the generated eight hypotheses path analysis was conducted. Figure 1 and Table 4 present the result of the analysis. The R^2 values which were 0.175, 0.154 and 0.265 indicates that 17.5, 15.4 and 26.5% of the performance expectancy, effort expectancy and social influence variances were explained by GST awareness, respectively. Table 4 shows that GST awareness positively and significantly related to performance expectancy ($\beta = 0.42$, $p<0.001$), effort expectancy ($\beta = 0.39$, $p<0.001$) and social influence ($\beta = 0.51$, $p<0.001$). Therefore, H1, H2 and H3 are supported. However, GST awareness is not a predictor for facilitating conditions, H4 is not supported. For the UTAUT model, performance expectancy, effort expectancy, social influence and facilitating conditions were not significant predictors of behavioral intention. Thus, H5, H6, H7 and H8 are not supported. Next, the R^2 value of 0.520 indicates that 52% of the variance in behavioral intention can be explained by the model in Fig. 1.

DISCUSSION AND CONCLUSION

This study reports empirical findings from a study that was carried out to examine the current state of awareness among non-adopters in terms of their organizations' intention to use the GST application system. Although the findings of this study found no support for the UTAUT factors and the adoption of the GST application system, there was support for the influence of awareness and the three of the UTAUT factors (performance expectancy, effort expectancy and social influence). Our study shows that awareness is an important link in building the right perceptions towards the benefit of adopting an IT system. UTAUT identifies important factors that contribute to the adoption of an IT system. By tailoring GST awareness programmes towards enhancing organizations' understanding of this system, organizations would be more willing to adopt a GST application system. In implementing the new tax reform, GST, Malaysian business organizations must devote greater effort to enhancing their capabilities towards the adoption of a GST application system.

As indicated earlier, this study examines a crucial feature of GST compliance, which is an organization's awareness and its adoption of a GST application system. Previous literature (Saira *et al*., 2010; Palil *et al*., 2013) focused on the level of awareness and tax compliance in general and found this to be low among Malaysians. The findings of this study provide insight not only on the link between awareness and IT adoption

but it also indirectly shows the organizations readiness to comply with the GST system. The self-policing features of GST are that it allows the businesses to claim their input tax credit by way of automatic deductions in their accounting system. This self-policing feature ensures that a GST application system enhances tax compliance among business organizations. Our findings show that performance expectancy, effort expectancy, social influence and facilitating conditions do not influence adoption of a GST application system. This has serious implications for Malaysian business organizations and the government. The government needs to design programmes to inculcate how the GST application systems will be able to help organizations meet the demands of a GST system.

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