Barriers to Information Technology Governance Adoption: A Preliminary Empirical Investigation

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Abstract

The adoption of IT Governance (ITG) continues to be an important topic for research. Many researchers have focused their attention on how these practices are currently being implemented in the many diverse areas and industries. Literature shows that a majority of these studies have only been based on industries and organizations in developed countries. There exist very few researches that look specifically within the context of a developing country. Furthermore, there seems to be a lack of research on identifying the barriers or inhibitors to IT Governance adoption within the context of an emerging yet still developing Asian country. This research sets out to justify, substantiate and improve on a priori model developed to study the barriers to the adoption of ITG practice using qualitative data obtained through a series of semi-structured interviews conducted on organizations in Malaysia.

Keywords: Information Technology Governance (ITG), barriers, Malaysia

1. Introduction

Appropriate governance of information technology (IT) is critical to fully harness the benefits of IT investments in organizations. Research has shown that organizations with proper governance of IT will result in at least 20 percent higher returns on assets than organizations with weaker governance (Weill, 2004). Another study finds that better IT governance practices lead to improved IT outcomes (IT Governance Institute, 2009).

Consequently, extensive effort has been made in the development of various standards and frameworks that facilitate effective IT governance (Warland & Ridley, 2005). Voluntary standards such as ISO/IEC 20000 for IT Service Management and ISO/IEC 27001 for IT Security Management have been introduced as a means to enable organizations to obtain certification. This enables them to gain competitive advantage, facilitates many of the legal and regulatory requirements as well as providing an objective validation by an impartial certifying body that the organization is vigilant in undertaking due diligence (Brenner, 2007). On the other hand, frameworks such as COBIT and ITIL consists of a set of best practices and are often implemented according to the needs of the organization. COBIT has 34 objectives which have been categorized under four domains: planning and organization, acquisition and implementation, delivery and support, and monitoring (Abu-Musa, 2009). ITIL is a set of books which cover practices in several areas of service management: service strategy, service design, service transition, service operation and continual service improvement (Winniford, Conger, & Erickson-Harris, 2009).

Yet, despite the availability of well-defined standards and frameworks for effective IT governance, research has shown that large proportions of organizations have not adopted any. Winniford et al. (2009) in her survey on US companies found that less than half had implemented any type of IT service management standards or frameworks. A recent survey by IT Governance Institute (ITGI) in
2008 found that the level of adoption of standards and frameworks that facilitate ITG is even lower by organizations in developing countries (IT Governance Institute, 2008).

Even though there are some research that looks into the issue of barriers and challenges to the adoption of ITG practice in developing countries, relatively little effort has been directed at generalizing the results. Latif et al. (2010) identified several challenges to ITIL adoption in their case study on a public utility company in Malaysia. These challenges include the lack of awareness; lack of a standard terminology and lack of clearly defined roles and responsibilities. Jaafar et al. (2009), which is also based on a case study of a government-linked company (GLC) in Malaysia, found the lack of enforcement as an important issue. Meanwhile, research on five public sector organizations in Tanzania has found that the top five issues that inhibit adoption of ITG practice include business people’s lower acceptance to new IT applications and use, weak measurement of IT performance and value to business, inadequately defined IT related roles, responsibilities and accountability, insufficient number of staff and inadequate IT skills and competency (Nfuka, Rusu, Johannesson, & Mutagahywa, 2009). While these researches provide some initial insights into the barriers of ITG adoption, due to a lack of theoretical underpinning and narrow context, it is not clear to what extent do these results are generalizable.

Our research attempts to provide a more general theoretical framework for understanding the adoption of ITG practice in developing countries, more specifically, Malaysia. By building upon a sound theoretical framework from the innovation literature, and using initial qualitative data for model development, we propose an initial causal model of barriers to adoption of ITG practice.

Specifically, we seek to answer the following research questions in this paper:

1. How should ITG practice be theoretically conceptualized so that an appropriate theoretical framework can be developed as the basis for our model?
2. What are the relevant factors within this framework that have been identified as potential barriers to adoption of ITG practices?
3. To what extent are these factors applicable in the context of a developing country?
4. What are the additional factors beyond those already identified in the literature that may be applicable in the context of a developing country?

2. Initial Theoretical Model

We develop the initial theoretical model by first conceptualizing ITG practice as an incremental, administrative innovation. By conceptualizing ITG practice as an innovation, we are able to justify the use of innovation adoption theories used to support the development of the initial theoretical model. Based on the chosen theories, we identify several factors that are posited to inhibit adoption. These factors are explained in detail before the initial theoretical model is presented in Figure 1.

2.1 Conceptualising ITG practice as an incremental, administrative innovation

We conceptualize the adoption of ITG practice as akin to the adoption of an innovation. More specifically, we argue that ITG practice can be conceptualized as an incremental, administrative innovation. We will present our argument by first deriving a typology of innovations along the two dimensions: (i) significance of change (incremental versus radical) and (ii) type (technological versus administrative). Next we will argue why ITG practice falls into the category of incremental, administrative innovation.

We define innovation as the development and/or use of ideas or behaviours perceived to be new by the relevant unit of adoption (Daft, 1978; Zaltman, Duncan, & Holbek, 1973). Innovation can be considered new to the individual adopter, to an organizational unit, to the whole organization or even to an entire industry or sector. This new idea may be in the form of a product, service, market,
operational and administrative structures, processes and systems (Damanpour & Daniel Wischnevsky, 2006).

While the majority of literature, particularly in the IS literature, often associates innovation with technological innovation, i.e., innovations that bring change to an organization by introducing changes in the product, process or service technology (Damanpour & Schneider, 2009), it should be noted that there are also another category of innovations that do not involve technological change. These innovations are called administrative innovations. These innovations usually only involve changes in an organization’s structure or administrative processes (Damanpour, 1990). An example of a technological innovation is e-commerce technology while an example of an administrative innovation is the introduction of a CIO position in an organization.

Orthogonal to this dimension for classifying innovation is another dimension that is found largely in technological innovation literature, which is the dimension of significance of change, i.e. whether an innovation results in radical or incremental changes. Radical innovation involves an abrupt major change or doing something remarkably different from how it was previously done. On the other hand, incremental innovation consists of a cumulative series of minor changes or introducing something which is similar to previous practices (Nord & Tucker, 1987; West & Fair, 1990). An example of a radical innovation is e-commerce technology while “related searches” in a Google search results page is an example of an incremental innovation.

We propose that these two dimensions are orthogonal, and that an innovation can be classified as belonging to one of the following four categories: (1) radical, technological innovation; (2) radical, administrative innovation; (3) incremental, technological innovation; (4) incremental, administrative innovation. This distinction is important as different types of innovation involve different determinants and different levels of strength in their influence in each context. Table 1 presents the innovation typology accompanied each by an example of an innovation.

<table>
<thead>
<tr>
<th>Type</th>
<th>Significance of change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technological</strong></td>
<td>Radical</td>
</tr>
<tr>
<td>E-commerce</td>
<td>“related searches” in a Google search results page</td>
</tr>
<tr>
<td><strong>Administrative</strong></td>
<td>CIO position</td>
</tr>
</tbody>
</table>

Based on the typology presented in Table 1, we next justify the classification of that particular innovation based on our typology. E-commerce can be considered as a radical, technological innovation as it requires technological elements such as hardware and software, and it brings with it significant changes to how business transactions are conducted. “Related searches” in a Google search results page is considered as an incremental, technological innovation due to the fact that while still requiring the use of software and hardware, there is little significance in terms of the overall functionality and usage of Google as a search engine. CIO position is an example of a radical, administrative innovation as the introduction of this new role to an organization will represent significant changes to the overall organizational structure as well as administrative processes to that particular organization. Furthermore, using this typology as a basis, we argue that ITG practice is a unique type of innovation which falls into the category of incremental, administrative innovation. Organizations often adopt an incremental approach to ITG practices (Spafford, 2003). Factors such as cost and the lack of perceived benefits often hinder a more radical or abrupt approach to adoption. Moreover, their adoption does not constitute major departures from previous practices, more often than not; they just involve minor improvements to existing practices to current organizational structures, administrative policies, processes and procedures.
2.2 ITG practice context, organizational context and environmental context

Conceptualizing ITG practice as an innovation enables us to underpin this research on theories used in innovation adoption research. In this study, we exploit Diffusion of Innovations Theory as well as Institutional Theory to come up with three contexts: organizational, ITG practice and environmental; which represent the basis for our initial theoretical model.

Diffusion of Innovations Theory

Diffusion of Innovations Theory is often used to study the adoption of an innovation. This theory was chosen since it could also be used to study barriers to innovation adoption. For example, Tapaninen et al. (2009) successfully used it to study barriers to the adoption of a renewable energy system. Often used in the study of technological innovations, recent studies show that it can also be extended to study administrative innovations (Hashem & Tann, 2007; Venkatraman, Loh, & Koh, 1994). Developed by Everett Rogers in 1962, this theory posits that there are five attributes that affect diffusion of an innovation which are relative advantage, compatibility, complexity, observability and triability. Relative advantage is defined as the degree to which an innovation can bring benefit to the organization. Compatibility is defined as the degree to which an innovation is consistent with existing business processes, practices and values systems. Complexity is defined as the degree to which the innovation is difficult to use. Observability is defined as the degree to which the results of the innovation are visible to others. Triability is defined as the degree to which an innovation may be experimented with.

While this theory has shown to be useful in studying barriers to adoption, critiques point to some apparent weaknesses. Most studies seem to be directed at voluntary adoptions by individuals in social systems (Brancheau & Wetherbe, 1990; Choudrie & Dwivedi, 2004). Empirical studies have shown that when applying to organizational levels, inconsistency will be found for the failure to recognize the differences in the unit of analysis (Chau & Tam, 1997). Others complain that the use of this theory alone cannot predict the adoption of complex innovations (Fichman, 1992). Lastly, it is considered by some researchers as inadequate in explaining the factors influencing many adoptions since it ignores factors both within and outside an organization (Looi, 2005).

To conclude, while this theory presents itself as a competent theory to study barriers to adoption, relying solely on it would represent an incomplete picture on the barriers that inhibit adoption of ITG practice. Therefore, it was pertinent to identify other theories that may help complement it and explain issues regarding social factors internal and external to the organization.

Institutional Theory

This theory originates from organizational studies. It offers a rich and diverse conceptualization of innovation adoption. It has seen usage in both technological and administrative innovations. Among the various expressions of this theory, a common theme that this theory instigates is that the adoption and use of innovations are subject to social pressures that may exhibit in the form of internal and external sources like social norms, resources and restrictions, national culture, market structure of the economy as well as political and legal structures (Damsgaard & Lyytinen, 2001; Salmeron & Bueno, 2006). DiMaggio and Powell (1983) put forward that organizations when facing the same environmental conditions, are forced to become more similar. This practice enables them to appear legitimate to their environment. They term this as isomorphism. They further claim that three types of institutional pressures- coercive, normative and mimetic, determine innovation adoption by organizations: (1) Coercive pressure are exerted by organizations or other bodies on social actors to adopt the prescribed attitudes, behaviours, and practice as the latter have resource dependency to the former (DiMaggio & Powell, 1983). At the organization level, coercive pressure may come from resource dominant organizations and regulatory bodies which exert legal and political pressure. (2)
**Normative pressure** occurs when an organization voluntarily, but unconsciously imitate the attitude, behaviours and practices of other organizations. This type of pressure is commonly associated with professionalism that relates to formal education and professional networks. Although this imitation is not pushed by large actors, however, those who have not adopted the innovation may feel discomfort when peers whom they admire have adopted the same (DiMaggio & Powell, 1983). **Mimetic pressures** are directly associated with both voluntary and conscious imitation or copying of the practices and behaviours of competitors or successful and high status actors in response to uncertainty or uncertain environments (DiMaggio & Powell, 1983).

Developing countries have been shown to be highly dependent on institutional organizations in implementing IS/IT based innovations. This is due to the various economical, political and historical factors (Al Nahian Riyadh, Akter, & Islam, 2009; Bada, Aniebonam, & Owei, 2004; Silva & Figueroa, 2002). Meanwhile, a look into ITG related literature reveals several researches that highlight the use of this theory. Ben Bouhaker et al.(2008) used Institutional Theory to explain the choice of ITG modes made by adopting organizations. Jacobson (2009) on the other hand, stresses the need for an Institutional Theory approach in the study of ITG and provides three avenues where it can be used: (1) To explain how ITG is actually implemented; (2) The links between ITG and IT performance; (3) How ITG changes over time. Similarly, D’Arcy & Hovav (2009) also advocates the use of Institutional Theory to study the relationship between organizational characteristics and security best practices. Consequently, it is postulated that Institutional Theory in the form of institutional pressures is a sound and useful theory to be used as a basis for explaining the barriers to the adoption of ITG practice.

### 2.2.1 Organizational context

Organizational context refers to firm or organizational characteristics including strategies, policies, structure and cultural aspects; it embodies a set of organization related characteristics that either constrain or facilitate diffusion or infusion of a particular innovation. The organization is a rich source of formal and informal structures, processes, attitudes and cultural traits that influence the innovation adoption process (Tornatzky & Fleischer, 1990).

**Lack of top management support**

There is a good body of research in the form of empirical IS studies that documents and highlights the importance of top management support in terms of leadership, commitment and understanding for a successful, effective adoption and deployment of new innovations and technologies (Armstrong & Sambamurthy, 1999). A look into ITG literature corroborates the importance of top management leadership and support (Bhattacharjya & Chang, 2008; Cater-Steel, 2009; IT Governance Institute, 2008; Willson & Pollard, 2009; Winniford et al., 2009).

**Lack of communication**

Implementing a standard or a new practice demands constant interaction between the various levels, units and departments in an organization. An organization will face difficulties if there is no common understanding and knowledge about the new standard or practice that is being implemented. Therefore, there must be some form of quality communication between these disparate levels, units and departments. Formal and informal communication has been acknowledged by many studies as an important component for effective ITG practice (PwC & ITGI, 2007). Several other researchers also concur (IT Governance Institute, 2008; J. Lee, Lee, & Jeong, 2008; Wilkin & Riddett, 2009).

**Resistance to change**

Any new innovation brings changes to existing work practices, and most adopters resist change. ITG practices could lead to a significant change in work procedures, and may involve re-engineering of the processes of entire departments and possible job losses or relocation. Resistance to change can be attributed to the lack of internal awareness on the importance of ITG. Survey and research by Willson et al.(2009) attest that resistance to change is a significant barrier to ITG adoption. Further proof can be obtained in research done by Bhattacharjya et al.(2008) and Winniford et al.(2009). Lack of
awareness on the importance of ITG may also be a cause for resistance, as organizations would only see the initiative as something that would add extra burden to their daily tasks (Gartner, 2005).

**Lack of formalization**
Formalisation refers to the use of formal rules and procedures within an organization (Gosselin, 1997; Grover & Goslar, 1993; Hage & Aiken, 1967). It is defined as ‘the degree to which an organization emphasises following rules and procedures in the role performance of its members’ (Rogers, 1995). Most innovation research reports formalisation to be positively associated with the adoption of innovation (Kimberly & Evanisko, 1981; Moch & Morse, 1977; Zmud, 1982). While there are no specific mention in the literature that formalization directly affects the adoption of ITG, this factor has received much attention in the administrative innovation literature (Damanpour, 1987; Zmud, 1982). It has been shown that a more formalized organization will have fewer problems in adopting administrative innovations.

**Lack of centralization**
Centralisation refers to the concentration of authority and decision-making activities in an organization (Gosselin, 1997; Grover & Goslar, 1993; Zaltman et al., 1973). It involves the participation of organization members in decisions associated with strategies, policies, and allocating resources within the organization (Hage & Aiken, 1967). Thus, centralisation can be defined as ‘the degree to which power and control in a system are concentrated in the hands of relatively few individuals’ (Rogers, 1995). Prior research findings vary with regard to the influence of centralisation on innovation adoption. Some studies have found that centralisation positively influences innovation adoption (Gosselin, 1997; Kimberly & Evanisko, 1981; Rogers, 1995; Zaltman et al., 1973; Zmud, 1982); while some have found a negative influence (Damanpour, 1991; Grover & Goslar, 1993; Moch & Morse, 1977; Fierce & Delbecq, 1977). Others have found an insignificant relationship between centralisation and adoption of innovation (Lai & Guynes, 1994). While there are no specific mention of this factor contributing as a barrier to ITG adoption in the literature, we felt that its inclusion in the initial model is justified as it has received considerable empirical support in determining administrative innovation adoption (Damanpour, 1987; Zmud, 1982). Moreover, ITG literature does point out that a highly centralized organization is positively associated with top management support (Xue, Liang, & Boulton, 2008). Top management support has been acknowledged in literature to be an important factor in ITG adoption.

### 2.2.2 ITG practice context

ITG practice context refers to the attributes or characteristics of an ITG standard or framework. Being an example of an innovation, Rogers’s (1995) Diffusions of Innovations theory may help in explaining features that inhibit its adoption. Previous research on the adoption of ITG practices has shown that its characteristics play a considerable role in determining adoption and implementation.

**Lack of perceived benefits**
Perceived benefit of an innovation has been expressed in several ways such as economic profitability, social benefit, relative advantage over the program or practice the innovation replaces, and enhanced status of the organization in its industry or among its clients (Nystrom, Ramamurthy, & Wilson, 2002; Rogers, 1995; Schneider, 2007; Tornatzky & Klien, 1982). It influences the adoption of innovation positively because the greater the innovation’s impact, the greater will be its capacity to help the organization achieve its strategic objectives and meet its performance goals. ITG literature corroborates this through research by Hashem & Tann (2007), Barlette & Fomin (2008), Latif et al. (2010), Bhattacharjya & Chang (2008) and Pollard & Cater-Steel (2009).

**Complexity**
Innovation complexity is defined as the degree to which the innovation is difficult to understand and use (Rogers, 1995; Zaltman et al., 1973). Complexity can represent the intellectual difficulty associated with understanding an innovation, as in differences between marginal and knowledge-based or low-technology and high-technology innovations (Gopalakrishnan & Damanpour, 1994).
Innovations which are more difficult to implement, are less likely to be adopted by the organization because of higher uncertainty of their success and lower likelihood of their contribution to organizational performance (Gopalakrishnan & Damanpour, 1994; Rogers, 1995). Research by Hashem & Tann (2007), IT Governance Institute (2008) and Barlette & Fomin (2008) show that complexity does play a significant part in determining adoption of ITG practices.

**Lack of compatibility**

According to Rogers (1995), compatibility of an innovation is defined as ‘the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters’. Compatibility can also be measured by how the new innovation is similar with other previously adopted standards. Innovation research has reported a positive relationship between perceived compatibility of an innovation and the rate and scope of its adoption (Rogers, 1995; Tornatzky & Klien, 1982). Delmas (2000) notes that past experience in other related standards may affect adoption. ITG literature also supports compatibility as a factor for adoption through research by Hashem & Tann (2007).

**Cost**

The need for evaluating the cost associated with adopting innovations is well documented in literature. Cost has frequently been shown to hamper the decision to adopt an innovation (Delmas, 2000). The same can also be said on the adoption of ITG practices (Barlette & Fomin, 2008; Bhattacharjya & Chang, 2008; Winniford et al., 2009).

2.2.3 *Environmental Context*

Environmental context refers to the external arena where the firm conducts its business including competitive, legal and regulatory atmosphere that are likely to affect firm or organization behaviour. Previous research acknowledge the roles of different institutions in the adoption and diffusion process as their roles are important (Swan & Newell, 1995).

**Lack of regulatory environment support**

Laws and regulations play an important part in the adoption of a technology, innovation or standard (2004) (2004). Within the context of ITG adoption, research in Western and developed countries has shown that government laws and regulations play a vital role (2008). Incentives and subsidies can also be introduced in the form of financial assistance and grants to organizations especially the SMEs to help ease the cost of adoption. In addition, awareness from institutions external to the organization is also a significant factor. There are a lot of instances were organizations especially the SMEs are often unaware of the existence of relevant laws and regulations related to ITG that actually affects them (Barlette & Fomin, 2008).
3. Research Methodology

3.1 Research design

The data collection activity was conducted using face-to-face, semi-structured interviews. The use of semi-structured interviews enables new and emerging factors to be explored. Interviewees consisted of senior management level staff. The number of interviews range from one to two depending on factors such as time and feedback of each interview session. As the semi-structured interview was conducted in Malaysia, there was a probability that the participants will want the interview to be conducted in the national language, which is Bahasa Malaysia. So, to enable the interviews to be conducted in Bahasa Malaysia, the process of translating the interview questions was done via back translation technique. Back translation has been widely used in the social sciences to test the accuracy of the translation and to detect errors in translation (Brislin, 1970). This technique required 2 individuals who are bilingual in English and Bahasa Malaysia to be involved in the translation process. Two colleagues of the researcher who were bilingual in English and Bahasa Malaysia were involved in the whole process.

3.2 Research protocol

The semi-structured interview consists of 10 main questions which are divided into several sections. The first section deals with demographic information. The second section deals with the level of awareness, implementation, experience and approach. The third section touches on the issues of perceived and experienced barriers. The last section consists of questions that delve into issues pertaining to improvements, commitment and other issues. The open ended question to close the interview session enables the interviewees to include other inputs not already covered in the previous questions.

3.3 Site selection

The selection of sites was based on a variation of purposive sampling, which is theory-based sampling. Theory-based sampling is used to look at the manifestations of factors so that a more
detailed analysis and examination of that factor can be done (Patton, 1990). Therefore, the organizations chose were representative of different sectors and industries in Malaysia. In all, 7 organizations were chosen of which one was used as a pilot case to test the relevance and validity of the interview questions. The sample frame consisted of two sectors, the government and the private sector. For the government sector, they consist of an agency, a department and a ministry. For the private sector, they consist of representatives of the manufacturing, telecommunications and IT solutions and services industry. Table 2 lists down a summary of the research context.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Business/industry</th>
<th>Interviewee</th>
<th>ITG practice adopted</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private</td>
<td>Telecommunications</td>
<td>General Manager, IT Strategy &amp; Governance</td>
<td>Non-specific</td>
<td>P1</td>
</tr>
<tr>
<td>Private</td>
<td>Car manufacturing</td>
<td>Senior Manager, ICT Strategy &amp; Architect</td>
<td>Non-specific</td>
<td>P2</td>
</tr>
<tr>
<td>Private</td>
<td>IT solutions and services</td>
<td>Service Delivery Manager</td>
<td>ITIL</td>
<td>P3</td>
</tr>
<tr>
<td>Private</td>
<td>Manufacturing of palm oil</td>
<td>Assistant Manager, IT</td>
<td>Non-specific</td>
<td>P4</td>
</tr>
<tr>
<td>Public</td>
<td>Government Agency</td>
<td>Deputy Director, ICT Policy &amp; Planning</td>
<td>Non-specific</td>
<td>G1</td>
</tr>
<tr>
<td>Public</td>
<td>Government Ministry</td>
<td>Undersecretary, IT Management</td>
<td>Non-specific</td>
<td>G2</td>
</tr>
<tr>
<td>Public</td>
<td>Government Department</td>
<td>CIO</td>
<td>ISMS</td>
<td>G3</td>
</tr>
</tbody>
</table>

4. Research findings and the revised model

The data analysis commenced after each transcription of each interview session, helped by the addition of notes and comments taken during the course of the interview. Every transcribed interview was carefully read and reviewed iteratively for the extraction of themes. Relevant information were extracted and then categorized into appropriate codes. Information was coded into existing themes already identified in the literature. Other interesting and relevant information that emerge from the interview transcripts were identified and coded into new themes.

4.1 Findings

In general, all respondents have shown a relatively good understanding on the definition of ITG and how ITG is related to their company. Based on information obtained, it can be concluded that the various factors identified in the original model were justified. Due to page restrictions, we confine our next discussion to the newly identified factors and show how they are consistent with previous studies.

Different needs/ priorities

This factor is defined as the difference in terms of precedence, importance, urgency accorded to ITG adoption. Some participants mentioned that the difference in needs and priorities accorded to ITG was a factor. For example, when asked why ITG practices has not been considered in government sectors such as government hospitals? G1 replied: “Priority, I don’t feel that it is a matter of conflicts, but a matter of their priorities”. His answers support previous research that systemic difference between public and private sector plays a part with regards to the priority given to ITG (Campbell, McDonald, & Sethibe, 2009).

Lack of slack resources

Slack resources refer to human resource and time resource. One participant laments the lack of slack resources as a factor. For example, G2 says: “So we don’t have the luxury of time, and resources, you know to implement, to study, because, I mean implementing ISO, any ISO 9000 also you have to spend a lot of time”. Existing literature has shown that insufficient number of human resource does
have an effect on ITG practice (Spremic et al., 2008). Others have shown that the lack of time also contributed as a barrier to adoption (C.-H. Lee, Lee, Park, & Jeong, 2008).

**Lack of vendor support**
Vendor support is defined as the willingness and support of external organizations which sells or supplies goods or items to the organization through their recognition, agreement, support, awareness, usage or commitment to the ITG initiative. Support from the industry in terms of their understanding and commitment is vital to the cause. Other support in terms of providing the relevant hardware and software tools required to implement proper ITG is also important. Participants highlighted the need for vendors that do business with the organization to be more understanding and committed. They gave an example whereby the lack of commitment from the vendor side had presented difficulties for them to comply with their own set of ITG practice. G3 notes that: “So a barrier would be to obtain commitment from external parties. One more, we have our vendors, we must need them to understand and have their commitment”. This supports the findings that external support is important to an organization in implementing ITG practices (Letsoalo, Brown, & Njenga, 2006).

**Lack of special interest groups (SIG) and institutes that champion ITG**
SIG and Institutes are a community or a group of people/organizations with an interest in advancing knowledge and adoption; they consist of members who cooperate to effect or to produce solutions within their particular field, through communication, meetings and organizing conferences. Three participants voiced their discontent at the lack of special interest groups and other institutions that specifically champion the ITG cause. The creation of these types of groups can go a long way in fostering awareness and can be a catalyst and a means for individuals and organizations interested in adopting ITG to share their experience. G1 asserts: “so the role of the community is important, we have to have a community of special interest group that looks at, that talks to each other, so it will be faster”. This finding corroborates King et al.’s (1994) notion that adoption of an innovation may require the influence of institutions other than the government such as professional associations and trade and industry associations.

**Lack of enforcement, implementation and execution**
Enforcement refers to the act of empowering, enforcing and compelling compliance to something. Meanwhile, implementation and execution is the process to actually perform, realize and carry through something. According to one of the participants, the enactment of laws and regulations are not enough to ensure adoption as initiatives often suffer from the lack of enforcement and execution. P3 relates to this by saying: “we have good policies in paper, but in terms of execution, sucks, sorry to say, there are gaps, so, whatever governance, whatever frameworks that we use, the importance is the definition, the understanding and the execution”. A look into literature supported his views. Siddiquee (2005) in his study on public accountability practices in Malaysia found that there seems to be less effort and commitment in terms of enforcing and executing laws and regulations. Department heads are known to have shown the lack of interest in taking disciplinary action against their subordinates. This may be attributed to the national culture of face saving and maintaining harmony.

**National culture**
National culture refers to factors associated with a person’s nationality that affects his behaviour, practice, ethics and emotions and as a result may affect his perceptions or actions towards something. Several participants mentioned the importance of national culture as a factor in ITG practices adoption. According to P1: “one thing about Malaysia, and also our Malaysian culture also, we are very accommodating...even though our governance saying that you should not do this for example, but when it comes to a specific customer”. His assertion is that the culture of Malaysian’s has to some extent played a role in influencing other factors. In this case, the culture of accommodating people, has contradicted with the regulations and governance mechanisms that have already been put in place. A more detailed discussion on national culture will be presented in the discussion of the revised theoretical model.
4.2 Revised model

There are a number of changes that have been made to accommodate input obtained from the interviews as well as from more in-depth research based on the comments from the interviews. One of the most significant changes is the introduction of a new context in the form of the national context. In this context are the factors of national culture and politics. Other modifications include the addition of slack resources as a factor. This is to address the issues of time and human resource. The introduction of sector/industry as a moderating factor is also highlighted to address the issue of difference in priorities. Last but not least is the inclusion of industry/vendor support as a factor in the environmental context to address the issue of lack of SIG, institutes and vendor support. The revised theoretical model is presented in Figure 2.

National context

After analyzing the inputs gathered from the interviews, it is believed that in a developing country such as Malaysia, the grouping of certain factors within the national context perspective will be more applicable to show the relationship of factors, namely politics and national culture that can affect factors already identified in the initial framework. Peng et al. (2008) stress that to study innovation adoption in a developing country, exploring the national context is of utmost importance. However, as opposed to their assumption that national context directly affects adoption, this research believes that national context indirectly affects adoption of ITG practices via factors in the organizational context. Next, discussion will focus on factors within the national context.

National culture

Culture refers to norms, roles, belief systems, laws and values that form meaningful wholes and that are interrelated in meaningful ways (Triandis, Vassiliou, Vassiliou, Tanaka, & Shammugam, 1972). From the definition, we can say that culture will affect the way how a person thinks, feels, reacts, communicates and behaves.

Previous ITG research has shown the importance of organizational culture on adoption and practice of ITG (2008). Newman et al. (1996) noted that management practices should be adapted to the local culture of where the organization operated to be most effective. He goes on to say that organizational culture may attenuate, but not completely eliminate the influence of national culture. Adler (1997) was even bolder in stating that organizational culture does not erase national culture. Therefore, we believe that the elements of organizational culture such as communication and top management support, commitment and leadership will somehow be influenced by national culture.

Politics

Politics refer to social relations involving authority or power and refers to the methods and tactics used to formulate and apply policy. One of the participants points out that more often than not, the drive to see through an initiative such as the push for standards adoption is very much dependant on the political environment. He elaborates that the change of government officials also meant changes to the current policies and priorities. Jacobson (2009) proposes that the study of ITG is more appropriate through the lens of institutional theory which takes into account political pressures among others. Campbell et al. (2009), attributes the difference between private and public organizations to the political influence that is apparent in government organizations. While these studies were conducted in developed, Western countries, we believe that politics will be a more important factor in developing countries due to their lack of maturity in governance-related issues. Therefore, we posit that politics will influence the elements in the organizational context.

Sector/ Industry

In developing countries, the amount of support accorded to organizations in terms of financial assistance, awareness and regulatory protection will very much depend on the sector or industry that the organization operates. Surveys have shown that the adoption of standards is very much correlated to the sector or industry that will benefit it the most. For example, the annual survey on ISO standards shows that the adoption of ISO 27001 standards is dominated by the service sector industries, mainly
from the private sector (ISO Central Secretariat, 2010). This includes the Information Technology sector, the financial sector and the health sector. Further support comes in the form of a study by Campbell et al. (2009) in which he suggests that the existence of the various systemic differences between private and public sector organizations supports the notion that the “one size fits all” approach to ITG may not apply. The Malaysian government has put its priority and firm backing on the services sector to drive economic growth (Malaysian Investment Development Authority, 2010). Therefore, organizations that do not operate within this sector are posited to receive less support and prioritization and as a result, these organizations will thus be less inclined to adopt ITG practices. In a similar vein, the priority given to the adoption of ITG practice is also dependent on the sector/industry that the organization operates. Hence, we believe that sector/industry moderates the relationship between national context and the organizational context.

**5. Conclusion and future research**

This study represents an ongoing research that looks into the barriers to the adoption of ITG practice in developing countries. An initial theoretical model developed earlier and informed by the Diffusion of Innovations Theory and Institutional Theory was used in this study. The aim was to validate and substantiate the initial model using qualitative data obtained from semi-structured interviews. When comparing the initial model against qualitative data obtained from this study, it was found that the model is indeed viable to be used to explain the phenomenon. Factors that were identified as potentially important inhibitors in developed countries were also found to be important in developing countries. Furthermore, new and emerging factors have also been identified. A revised model that accommodates findings from this study was presented. This revised model presents the current view of the problem. Future work will involve the use of the Delphi method to identify the most important set of factors that may inhibit adoption of ITG practice. Ultimately, a survey questionnaire will be used to generalize the results.
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\[1\] In this paper, the term ‘ITG practice’ is used throughout to refer to both standards (such as ISO/IEC 27001) and frameworks (such as ITIL) that facilitate effective ITG.
7. References


