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IT Governance Adoption in Malaysia: A Preliminary Investigation

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Abstract

IT Governance (ITG) adoption remains a relevant topic of study. While extensive research has been done looking into the drivers and critical success factors of ITG practice, there seems to be a lack of interest in identifying the barriers to its adoption. This study reports on a survey conducted to first: provide some primary data that suggest ITG adoption and maturity levels are still low, especially in a developing country like Malaysia; and second: to provide initial empirical support for model development. Results obtained supported our assumptions that: (1) ITG adoption and maturity levels are still relatively low in Malaysia, therefore justifying Malaysia as a suitable case; (2) organizational factors, environmental factors and characteristics of the innovation as identified from the literature may serve as possible barriers to adoption.

Keywords

ITG practice, barriers, incremental management innovation, Malaysia

INTRODUCTION

Information technology (IT) has significantly influenced how organizations conduct business. To highlight this fact, organizations continue to make significant investments in IT despite the recent economic downturn (Gartner 2010). The reliance on IT by organizations points to the need for better management, control and governance of these IT investments. Consequently, IT Governance (ITG) plays a significant part in ensuring that these investments deliver value and minimizes risk. ITG defines “the decision rights and accountability framework to encourage the desirable behaviour in the use of IT” (Van Grembergen 2004). Research has shown that organizations with proper ITG will result in at least 20 percent higher returns on assets than organizations with weaker governance (Weill 2004). Furthermore, better governance of IT lead to improved IT outcomes (IT Governance Institute 2009).

Previous researchers have shown that ITG is complex and dynamic in nature; it consists of a set of interdependent subsystems (combination of structures, processes and relational mechanisms) that work together as a whole (Weill 2004). Consequently, there are a variety of ITG practices available (Van Grembergen and De Haes 2010). This research however, is limited to reporting only the adoption and practice of standards and frameworks that are well-known to facilitate ITG. Therefore, we define ITG practice as “standards and frameworks that facilitate effective ITG”. We limit the scope of our research to studying only standards and frameworks as they have been utilized by corporations and organizations for the governance of IT (PwC & ITGI 2007).

Accordingly, efforts have been made in the development of various standards and frameworks facilitating effective ITG (Warland and Ridley 2005). Voluntary standards such as the ISO/IEC 27000 series for information security and ISO/IEC 20000 for service management have been established to enable organizations to attain certification. Obtaining certification would facilitate many of the legal and regulatory requirements, gain competitive advantage and provide an objective validation by an impartial certifying body (Brenner 2007). Conversely, frameworks like COBIT and ITIL which contain a set of best practices are adopted and implemented according to the needs of the organization. For example, COBIT consists of 34 objectives categorized into four domains: planning and organization, acquisition and implementation, delivery and support, and monitor and evaluate (Abu-Musa 2009). ITIL on the other hand consist of a set of books which cover practices in several

\[1\] From this point onwards, the term “ITG practice” will refer to standards and frameworks that facilitate effective ITG.
areas of service management: service strategy, service design, service transition, service operation and continual service improvement (Winniford et al. 2009).

Despite the availability of these well-defined standards and frameworks, research has shown that there are still large proportions of organizations that have not embraced them. A survey on U.S companies reveal less than half had implemented any type of ITG standard or framework (Winniford et al. 2009). This is compounded by a survey which found that the adoption levels of standards and frameworks facilitating ITG is even lower by organizations in developing countries (IT Governance Institute 2008b).

While there have been many studies that have looked upon the drivers and critical success factors for their adoption (Pollard and Cater-Steel 2009; Tan et al. 2009), less research has been accorded to the factors that inhibit them, much less in developing countries. Notable exceptions include a case study research by Jaafar and Jordan (2009) which found that a lack of enforcement as a major issue. Meanwhile, Latif et al. (2010) identified several challenges to ITIL adoption in their case study on a major public utility company in Malaysia. These challenges include the lack of awareness, lack of standard terminology and lack of clear defined roles and responsibilities. Research such as these provide some initial insights into the barriers of ITG adoption, due to a lack of theoretical underpinnings and narrow context, it is not clear as to what extent do these results are generalizable.

This paper reports the preliminary results of a larger research that attempt to provide a more general theoretical framework for understanding barriers to adoption of ITG practice in developing countries. In particular, we choose Malaysia as our case country. Malaysia has shown that it recognises the importance of IT through various initiatives like the Multimedia Super Corridor (MSC). Flagship applications include e-government, smart schools and tele-health initiatives (Chong 2011). However, recent studies have suggested that the governance of IT and its acceptance is still low (Teo and Tan 2010). While the previous researchers provided some proof justifying Malaysia as a suitable case, further empirical and primary data is needed to support this statement as the previous research only obtained input from the electronics manufacturing industry.

Therefore, the objective of this paper is: (1) to provide some primary data that suggest ITG adoption and maturity levels are still low in Malaysia; and therefore use this as a motivation to study the barriers that inhibit adoption of ITG practice; (2) to provide initial empirical support for model development.

This paper focuses on justifying how the practice of ITG should be conceptualized, reports on the outcome of a survey that was done to uncover the state of ITG practice in Malaysia, and to provide empirical data for the development of a theoretical model for understanding barriers to ITG adoption.

CONCEPTUALIZING ITG PRACTICE AS INNOVATION

The need for proper ITG practice conceptualization

Review of standards and frameworks adoption literature suggests that formal practice is not a well-defined concept. This is evident from the inconsistencies in the usage of the term adoption, implementation and assimilation associated with “adoption” of these formal practices. For example, van Wessel et al.(2011) in his study on ISO 27002 standard adoption uses the term adoption to refer to the combined process of selection (adoption decision), implementation and use. On the other hand, most researchers, like (Ehigie and McAndrew 2005) in their study on TQM, prefer the use of the term adoption to refer to the decision to make use. These inconsistencies appear to stem from the lack of clarity regarding the conceptualization of what is formal practice: is it an artefact? (in which case, treating adoption as decision is appropriate), or a set of prescribed actions, process and procedures? (in which case, treating adoption as decision is inappropriate as adoption is a process of decision-making and implementation). The ability to define formal practice is crucial as factors that inhibit adoption decision may be quite different from the factors that inhibit actual implementation. With respect to ITG practice, while attempts have been made to conceptualize it (discussed below), there still appears to be some conflicting ideas. Therefore, to systematically understand adoption of ITG practice, and identify the relevant factors, there is a need for us to first formally conceptualize ITG practice. In addition, by correctly conceptualizing ITG practice, we will be able to appropriate existing theories for our research.

Current conceptualizations

Previous research have conceptualized ITG practice either as a best practice framework (Looso and Goeken 2010) or a process improvement framework (Cater-Steel et al. 2006). Issues arose as to what exactly is a best practice. Reasons for this being the definition of best practice itself. Best practice is defined by Reider in Ungan (2004) as “the one that achieve the desired results”. Meanwhile, Chevron in O’Dell and Grayson (1998) adopted
a simple definition of best practice as “any practice, knowledge, know-how or experience that has proven to be valuable or effective within one organization that may have applicability to other organizations”. They go on to define four different levels of best practice: good idea, good practice, local best practice, industry best practice. Formal ITG practices have been touted as fitting the industry best practice definition. However, best practice is a relative term, rather than an absolute standard (American Productivity and Quality Center 1993). Simply put, best practice is a moving target; there is no single best practice, as a best practice for one company may not be the best for another company. Therefore, conceptualizing ITG practice as simply a best practice may not be suitable.

Meanwhile limiting them to the term process improvement frameworks is not justified either as their adoption and implementation contribute more than just mere improvements. Benefits of adopting and implementing ITIL and COBIT include achieving alignment between business and IT, resulting in a possible positive effect on business performance, competitive advantage and increased profitability (Marrone et al. 2010; Marrone and Kolbe 2010). The benefits of adopting ISO 27001 on the other hand include increase staff awareness of information security, mitigation of threats and providing better data and privacy protection. When used in combination, these ITG practices support governance activities, define requirements in service and project definitions, internally and with service providers, verify provider capability or demonstrate competence to the market, provide a framework for audit/assessment and an external view of the organization as well as facilitate continuous improvement (IT Governance Institute 2008a). We believe that a more appropriate and theoretical sound conceptualization can be found in the innovation literature.

### ITG practice as an incremental, management innovation

Innovation adoption and diffusion researchers generally define innovation as the development and/or use of new ideas or behaviours (Daft 1978; Walker 2006; Zaltman et al. 1973). A new idea can pertain to a new product, service, market, operational and administrative structures, processes and systems. An innovation can be considered new to the individual adopter, to an organizational subunit, to the organization as a whole, or to the entire sector, industry, or organizational population. Like the majority of the studies of the adoption of innovation at the firm level, we define innovation in this study as new to the adopting organization (Bantel and Jackson 1989; Damanpour and Evan 1984; Walker 2006).

The term management innovation has recently gained currency in the organization management literature, overtaking the terms organizational and administrative ². Hamel (2006) defined management innovation as departure from traditional management principles, processes, and practices that ‘alters the way the work of management is performed. Put simply, management innovation changes how managers do what they do’. As innovations in organizational form, practices, processes, or techniques, management innovations constitute ‘the rules and routines by which work gets done inside organizations’ (Birkinshaw et al. 2008). Latest research by Vaccaro, Jansen, Van Den Bosch, and Volberda (2010) define management innovation as new practices, processes, and structures that change the nature of managerial work at the firm level. Walker, Damanpour, and Deveci (2011) define management innovation as new approaches to devise strategy and structure in the organization, modify the organization’s management processes, and motivate and reward its employees.

Management practice has been defined by Davidson in Woods and Lamond (2011) as “the function of leading, organizing, controlling, and planning efficiently and effectively to achieve the goals of an organization”. Literature on management practices relate the adoption of new management practice as akin to the adoption of an innovation (Daniel et al. 2011). Research in the domain of management practices explores the adoption, adaptation, use and discontinuance of administrative and management tools and frameworks. Management practices may be new-to-the-state-of-the art or new to the organization (Mol and Birkinshaw 2009). This study adopts the latter definition. Whichever definition researchers apply; at the point of first adoption, the tools and frameworks are new to the organization. Hence the wider field of innovation studies, particularly management innovation literature as highlighted above, is highly relevant to the field of management practices (Daniel et al. 2011). In essence, ITG practice is composed of a set of practices to be utilized by management for strategic IT decision making and control; to enable and facilitate effective ITG (IT Governance Institute 2008a; Van Grembergen 2004). Thus, ITG practice can be viewed as a set of management practices. Therefore, adoption of ITG practice by an organization can be considered as an adoption of a management innovation.

Innovation researchers have introduced many conceptual typologies of innovation. Subdividing innovation into groups that share certain characteristics allows researchers to better understand the individual, organizational or

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² Management innovation has also been referred extensively in the literature, whether explicitly or implicitly as some form of organizational, managerial or administrative innovations. Refer to Damanpour, F., and Aravind, D. 2011. “Managerial Innovation: Conceptions, Processes, and Antecedents,” Management and Organization Review), pp no-no.
contextual factors that may be more or less important for different types of innovations and, hence, it may increase construct clarity (Suddaby, 2010).

While contemporary innovation adoption researchers have acknowledged the diverse typologies of innovation, less can be attributed to the stream of organization management innovation literature. One of the more prominent typology that has emerged in contemporary innovation adoption literature is the dichotomy between radical and incremental innovation (Afuah 1998; Dewar and Dutton 1986). A radical innovation is generally said to mark a distinct and risky departure from existing practices and competences, whereas incremental change builds on the existing skill set (Afuah 1998; Ettlie et al. 1984). Most organization management innovation literature focus their attention on distinguishing the level of “newness” - new to the firm or new to the state of the art, neglecting the distinguishing factors between radical and incremental innovations. Harder (2011) argues that an innovation may well be new to the world without being radical in the traditional sense of the word. i.e.: without representing a large departure from current practice. On the other hand, even though an innovation is only new to the firm, it may still represent a huge paradigm shift for the adopting organization.

Organizations prefer to adopt and implement ITG practices incrementally, with the intention of realising the benefits through partial and incremental adoptions so that quick wins can be achieved; taking into account the complex nature of ITG implementation. Furthermore, the changes made each time exemplify only a small departure of current existing practices and competencies, therefore actually building on existing skill sets. Therefore, this study argues further that ITG practice is an incremental, management innovation and thus addresses the lack of study pertaining to this specific type of management innovation as purported by Harder (2011).

In conclusion, we propose that ITG practice be conceptualized as an incremental, management innovation.

INITIAL THEORETICAL MODEL

By conceptualizing ITG practice as an innovation, we can draw upon mature theories often utilized in innovation adoption research: Institutional Theory and Innovation Diffusion Theory, which will assist us in explaining the phenomenon of study.

Innovation Diffusion theory posits that there are five attributes that affect innovation adoption which are relative advantage, compatibility, complexity, observability and triability (Rogers 1995). These factors may act as drivers and also inhibitors to innovation adoption. Institutional theory on the other hand, instigates that the adoption of an innovation is subjected to social pressures that may exhibit in the form of internal and external resources like social norms, resources and restrictions, national culture, market structure of the economy as well as political and legal structures (Damsgaard and Lytyinen 2001).

Further research on studies involving innovation adoption reveal that antecedents to adoption can be grouped into the following context: organizational context, environmental context and characteristics of the innovation/ITG practice context (Damanpour and Schneider 2009). Based on a thorough literature review and guided by innovation adoption theories, we constructed an initial theoretical model. The initial model was then adjusted and modified based on input obtained from a qualitative research in the form of semi-structured interviews with 6 organizations in Malaysia. As a result, minor changes were made including the repositioning of sector/industry and organizational size as possible factors that drive the barriers within the organizational context. Due to space constraints, readers are referred to our previous paper (Othman et al. 2010) on the development of the initial theoretical model and accompanying qualitative study.

In this paper, we present the revised theoretical model resulting from that qualitative study. We do expect the factors identified in the theoretical model to continually evolve with more data collection activities.
RESEARCH DESIGN

A convenience sampling method was used in determining the sample of the study. This method of sampling is used as it presents the easiest way of collecting responses from reliable recruits on a given topic of interest.

Prior to distribution, the instrument was pilot tested with several postgraduate students majoring in Information Systems at the author’s university of study. They were asked to complete the questionnaire and then evaluate the questionnaire for clarity, bias, ambiguous questions and relevance. After the questionnaire had been finalized, it was administered to 106 participants of the annual 10th IT Governance, Security and Assurance Conference 2011 held in Kuala Lumpur, Malaysia.

The structure of the questionnaire addressed many aspects of ITG, its adoption, usage, implementation and maturity. The survey contained questions to which responses used Likert scales, nominal scales and ranking. First, respondents were asked on issues regarding their current business and IT strategy, the current role of IT in their organization as well as the issues they’ve encountered while implementing an IT-related project. Next, respondent were asked on their current application of ITG. This involves a self-assessment of their current ITG practice maturity levels. This is followed by an assessment on the factors that influence their adoption of ITG practices. The following section was related to the antecedents of ITG practice. Respondents were asked on their perception of the drivers, enablers and barriers to ITG practice. They were asked to select their top five choices that they perceive as the most important factors in relation to ITG practice adoption. Finally, those surveyed were asked about some demographic questions.

Research Sample

Response from the survey participants was encouraging. Of the 106 questionnaires distributed, 70 were returned with 51 deemed usable for further analysis. This represents a 48% response rate. The response rate is well above the value of 35% as recommended by Baruch and Holton (2008) for surveys used in organizational research. Higher response rate can be attributed to the topic being addressed which was deemed relevant and interesting to the respondents.

Demographics

The final sample, comprised of 51 organizations from various sectors, with the majority coming from the financial services (35%), telecommunications, technology, transportation and education each were represented equally (7%) while the rest were represented by between 3%-18%. The scale used for the number of employees and annual turnover were devised specifically to capture the differences between small-medium enterprises (SME’s) and large organizations. Evidently, large organizations dominated the survey through the number of employees and annual turnover indicators with 84% and 55% respectively. The ownership structure can be
grouped into publicly owned and privately owned organizations with each represented by 35% and 51% respectively. A summary of the organizational profile is presented in Table 1.

Key Personnel Characteristics
The respondents in this survey consist of a combination of professionals representing business and IT backgrounds. However, only 16% are part of the senior management team. This was expected as most organizations will be reluctant to send their most senior management personnel to attend a 2 day conference.

Table 1: Profile of responding organizations

<table>
<thead>
<tr>
<th>Industry / Sector</th>
<th>%</th>
<th>Number of employees</th>
<th>%</th>
<th>Ownership structure</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial services</td>
<td>35</td>
<td>&lt; 20</td>
<td>2</td>
<td>&gt; 50% government owned</td>
<td>19</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>4</td>
<td>20 - 50</td>
<td>2</td>
<td>&gt; 50% privately owned</td>
<td>37</td>
</tr>
<tr>
<td>Retail</td>
<td>3</td>
<td>51 – 150</td>
<td>6</td>
<td>&gt; 50% owned by financial inst.</td>
<td>14</td>
</tr>
<tr>
<td>Healthcare</td>
<td>3</td>
<td>&gt; 151</td>
<td>84</td>
<td>&gt; 50% publicly owned</td>
<td>16</td>
</tr>
<tr>
<td>Energy (oil and gas)</td>
<td>5</td>
<td>Don’t know</td>
<td>6</td>
<td>Mixed ownership</td>
<td>10</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Technology</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>4</td>
<td>&lt; RM200</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>7</td>
<td>RM 200 - 249</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>7</td>
<td>RM 250 - 999</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>18</td>
<td>RM 1000 - 5000</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>RM 5100 - 9900</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>RM 10000 – 25 000</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; RM 25 000</td>
<td>55</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Don’t know</td>
<td>27</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ANALYSIS OF RESEARCH RESULTS
In this section, we report on the more interesting preliminary results obtained from the survey questionnaire.

ITG adoption in Malaysia

Figure 2: ITG practice as an innovation

Figure 2 shows that 72% of the respondents agree or strongly agree that ITG practice is an innovation. Measurement items were adapted from Vaccaro et al. (2010), used to measure management innovation.
In this study, we adopt the ITG maturity level assessment as defined by Van Grembergen and Haes (2009). Figure 3 shows that ITG maturity levels hover between levels 1 to 4. Furthermore, it also indicates that nearly 50% of organizations surveyed are still at a stage whereby ITG practices are repeatable at best (Level 0 – Level 2). This shows that organizations are less matured in their ITG practice and further suggest that adoption of ITG practice is also low. However, since this is a very crude assessment made by individuals, therefore we caution on the level of validity of their assessments. A more accurate representation would require a thorough assessment using more stringent measurements, such as those used by Nfuka and Rusu (2010) in their study. We assume that these levels may well be much lower if a more thorough assessment is made.

**Barriers to ITG practice in Malaysia**

Figure 4 shows the factors included in the list of barriers. From the list of potential barriers, we asked the respondents to rank their top 5 barriers. In determining the ranking of barriers, we put certain weight to each rank of factors, for example, the number one ranked factor would receive a weight of five, while the second ranked factor would receive a weight of four and so on and so forth. The sum of weight*response for each factor was used to present the final results of the ranking. This final list includes all factors ranked according to their level of importance.

**Key findings**

Organizational factors and characteristics of the innovation feature highly as barriers while environmental factors are less prominent. The findings are supported in the management / administrative innovation literature which suggest that organizational factors and characteristics of the innovation have a much more stronger influence as antecedents to adoption (Damanpour and Schneider 2009).
Limitations of the research

The majority of respondents were from the financial sector. This may help to explain some variances observed such as the inclination towards a specific standard or framework adoption. Furthermore, a better representation from small and medium enterprises (SME’s) would serve to make the results more generalizable to the population.

CONCLUSION

The objective of this study was to obtain some primary data on the state of ITG adoption in Malaysia. Empirical data was sought to justify choosing Malaysia as a case study. Findings suggest that adoption and maturity levels of ITG practice in Malaysia is indeed rather low and therefore points to the existence of factors that may inhibit adoption of ITG practice. Organizations in Malaysia were also inclined to view ITG practice as an innovation, therefore supporting our conceptualization of ITG practice. Furthermore, results indicate the presence of organizational, environmental and characteristics of the innovation as factors inhibiting adoption. However, further research will need to be done to identify the key inhibitors to adoption.

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