INFORMATION TECHNOLOGY AND ACCOUNTANTS – WHAT SKILLS AND COMPETENCIES ARE REQUIRED?

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Abstract

Technology has changed the face of business over the years. It has changed the way businesses are structured as well as the way businesses are executed. The International Federation of Accountants acknowledges that there is an increasing concern about the level of competencies accountants possess in the use of information technologies, and whether they are prepared to meet the challenges of contemporary business world. In Malaysian paradigm, accountants are trained by universities, polytechnic institutions and the Malaysian Institute of Accountants. However, there is no common grounds among these institutions about what information technology related skills, competencies or expertise are required throughout the life cycle of an accountant’s occupancy. As a result, each of these institutions incorporates generic information technology skills rather than specific skills in their curriculum. This research focuses on information technology based competencies framework for professional accountants, specifically those operating in small to medium sized accounting practices. This circumstance highlights the information intensive and information driven nature of this organisations, which signifies the important of competencies in information technology for this organisation. This research, thus, makes significant contribution to academic and professional bodies, as well as to the industry by providing theoretical base for developing information technology related competencies for knowledge workers in general and professional accountants in particular.

Keywords: Information technology, competencies, accountants, framework
INTRODUCTION

Since early 1990s corporate world has embraced technology at a fast rate. As a result, almost entire businesses have been automated. The result of this automation has been profound on job designs of the employees of these businesses. For example, terms like ‘knowledge worker’ have been consistently used to describe contemporary business workers, since information technologies (IT) have become an integral part of their routine work. The role of accountants in modern business organisations is no exception, which has been transformed from manual to computerised accounting (Ismail and Abidin 2009). In fact, IT has changed the way data is collected, processed, stored, and aggregated for preparation of accounting and finance related information required by the management to control and manage business activities (Winograd et al. 2000).

IT competencies are imperative for accountants to perform their tasks (Wessel 2008) These competencies are imperative for accountants to perform their tasks (Wessel 2008) and constitute IT skills, IT experience, management skills (in particular project management) and interpersonal skills. These skills on one hand aid the routine business activities related to accountants’ work, and on the other hand help them create an environment where these technologies operate at their optimum level for the strategic internal and external advantage of the business. This also signifies the changing phase of accounting work and corresponding IT skills. Therefore, there is a complex set of competencies required by accountants to offer better quality service to customers. Knowledge of IT and experience in IT, of course, is at the core of these skills. However, there are certain organisations, human and interpersonal skills required by the accountants to make appropriate use of IT skills in organisational settings. For example, for an accountant, skills and competencies in use of spreadsheet or taxation software or accounting software is required. However, these software are process dependent and take input from various other areas of the organisations and at the same time provide output to various other areas of the organisations. In these circumstances, an individual needs to have complementary teamwork, interpersonal, and analytical skills to understand the information needs of the process, comprehend process hand offs and interfaces, and process information to produce useful outputs.

It is essential to explore the set of skills required by professional accountants, specifically in Malaysian small to medium accounting practices to perform the tasks efficiently. Professional accountants in these type organisations have important roles in providing business support to the organisations, especially small to medium sized enterprise (SMEs). This is due to the international recognition of SMEs as vital contributors to economic development and crucial source to the most developed and developing economies (Mohamaed and Lashine 2003) Moreover, Malaysian government has allocated substantial resources to accelerate the use of IT including preparing organisation’s financial statements reports to enhancing and encouraging growth of SMEs (Economic Planning Unit 2006, Hashim and Wafa 2002 and Salleh and Dnubisi 2006). Broadly speaking, small to medium accounting practices play the main role in supporting the SMEs in their compliance to taxation, auditing, accounting and other regulatory requirements and become the niche market for small to medium accounting practices (Harun et al. 2010). It will, however, be interesting to study the competencies developed in the use of IT in different culture settings.

This research is structured as follows: the first section describes the motivation of this research. The second section provides a brief review of the concept of IT competencies for professional accountants. This is followed by a brief description of the proposed framework, research methods, and the last section outlines a conclusion.
2 RESEARCH MOTIVATION

This research is motivated by two factors. First, the literature suggests that acquiring IT competencies is important for professional accountants since every aspect of their work involves the use of IT (Elliot 2002). Thus, IT has become an integral part of accounting in every organisation and a fundamental building block to support and sustain the growth of the business.

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Dimension(s)</th>
<th>Result(s)</th>
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<tbody>
<tr>
<td>McKee (2000) (Norway)</td>
<td>Technical Skills</td>
<td>• Low level of IT knowledge.</td>
</tr>
<tr>
<td>Chang &amp; Hwang (2003) (Taiwan)</td>
<td>IT Topics Issues by AICPA</td>
<td>• Accounting educators and practitioners are agreeing regarding IT topics issues by AICPA.</td>
</tr>
<tr>
<td>Greenstein-Prosch &amp; McKee (2004) (United States)</td>
<td>Technical Skills</td>
<td>• Low level of knowledge for e-commerce and advanced technologies and audit automation and high level of knowledge for office automation and accounting firm office automation.</td>
</tr>
<tr>
<td>Greenstein-Prosch &amp; McKee (2005) (United States and German)</td>
<td>Technical Skills</td>
<td>• Accounting practitioners for both countries have low level of knowledge for advanced technologies.</td>
</tr>
<tr>
<td>Chen, YF (2005) (Taiwan)</td>
<td>Technical Skills</td>
<td>• Accountants are proficient with the general computer and the professional accounting software skills. Concerned on accountant’s capability in managerial, advisory and evaluative roles of IT deployment.</td>
</tr>
<tr>
<td>Janvrin, Bierstaker &amp; Lowe (2008) (United States)</td>
<td>Technical Skills</td>
<td>• IT use and perceived importance vary by audit firm size.</td>
</tr>
<tr>
<td>Ismail &amp; Abidin (2009) (Malaysia)</td>
<td>Technical Skills</td>
<td>• Low level of knowledge in advanced technologies such as EDI, CASE tools and high level of knowledge in General Office Automation.</td>
</tr>
<tr>
<td>Rai, Vatanasakdakul &amp; Aoun (2010) (Australia)</td>
<td>Technical Skills</td>
<td>• IT knowledge lower that the perception towards the importance of technologies.</td>
</tr>
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Table 1: Previous Studies Relating to Accounting Practitioners IT Competencies
Source: Developed for this Research

Secondly, IT competencies for professional accountants, particularly in Malaysian Small to medium accounting practices context is an area that has not been fully explored. Although many studies have been conducted in Malaysian context focusing on the identification and analysis of technical skills and knowledge of accounting students, accounting practitioners such as auditors, and analysis of integration of IT into accounting curriculums (Ismail and
Abidin 2009, Lai and Nawawi 2010; Selamat et al. 2010), yet, there have not been any study into the nature and type of IT related skills required for professional accountants to perform their duties efficiently. Even in the studies where IT skills were investigated, those skills were investigated in a uni-dimensional manner. This means that only the skills related to the use of IT skills has been investigated as illustrated in Table 1.

3 LITERATURE REVIEW

The demand by the business environment on updating the way accountants work has given rise to questions on whether accountants are competent or not in using IT. The reason is that the key to successful performance of business activities is high competencies in using IT. Competence is defined as the state of quality of being adequately or well qualified or a specific range of skills, knowledge and abilities (Oxford Dictionary). Competence, therefore, is the link between skills of employee and the job requirements (Polard and Steczkowicz 2003). Basselier et al. (2003) define IT competencies as the set of IT-related knowledge and experience that a business manager knowledge worker possesses. The authors suggest two dimensions: IT related knowledge and IT experience. IT knowledge refers to specialised knowledge possessed by individuals i.e., how well they understand fundamental IT concepts, how well informed they are about the use of IT in their organisations. However, IT experience refers to the activities taking place in the particular organisational context relating the individual’s work. IT experience represents the technical knowledge of the individual that he/she has gain from previous interaction with technology. So that, increased interaction has resulted in an increased the competency level of the individual.

In the accounting context, Carnaghan (2004) views IT competencies as what would be demonstrated by activities, like being able to create a spreadsheet or database for a particular purpose, or the ability to use software. Table 2 illustrates a compilation of IT competencies definition from various authors. According to IFAC (2003), professional accountants are expected to possess necessary IT competencies and the credibility of the accountancy profession depends on their success in fulfilling this obligation. Thus, every professional accountant is expected to act as a user, designer, manager, planner or evaluator of information systems; or a combination of these roles (Wessel 2008). It has to be acknowledged that these roles require technical skills, organisation skills, interpersonal skills, and other social skills. In contemporary context, interpersonal skills are extremely important as these skills in an IT context are essential ingredient of the skill required to support the professional accountants (IFAC 2003).

In considering the definition for IT competencies of professional accountants, it is important to emphasise the need for both IT skills and relevant knowledge such as management skills, interpersonal skills and experience of IT (IFAC 2003). Thus, integrating the abovementioned definitions and discussion, IT competencies are defined as;

“the set of IT skills, management skills, IT experience and interpersonal skills that professional accountants must possess to use IT effectively”.

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Table 2. Definition of IT Competencies
Source: Compiled from various authors

<table>
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<th>Author(s)</th>
<th>Definition of IT Competencies</th>
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<tr>
<td>Gold, Malhotra &amp; Segard (2001)</td>
<td>“the shared IT capability that enables the flow of knowledge in organization to be supported”</td>
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<tr>
<td>Tippin &amp; Sohi (2003)</td>
<td>“consist of three important component, namely IT knowledge, IT operation, and IT object”</td>
</tr>
<tr>
<td>Basselier, Reich &amp; Benbasat et al. (2003)</td>
<td>“the set of IT-related knowledge and experience that a business manager possesses”</td>
</tr>
<tr>
<td>Carnaghan (2004)</td>
<td>“what would be demonstrated by activities, like being able to create a spreadsheet or database for a particular purpose, or the ability to use tax planning software”</td>
</tr>
<tr>
<td>Croteau &amp; Raymond (2004)</td>
<td>“to support the effective use and management of IT”</td>
</tr>
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</table>

In Malaysia, there is a growing concern about what are the necessary IT skills set required for accountants and what are the IT related competencies that help accountants to perform their job better (Ismail and Abidin 2009; Che-Abdul-Rahman et al. 2011). Therefore, IFAC, higher academic institutions and Malaysian Institute of Accountants (MIA) are the three sources actively involved with the development of IT competencies in Malaysia. IFAC is a worldwide accounting organisation for the accountancy profession with the objectives of protecting the public interest by developing high-quality international standards, promoting strong ethical values, encouraging quality practice, and supporting the development of all sectors of the profession around the world (Wessel 2008). IFAC guidelines have been used by accounting educators and accounting practitioners as a guide to improve professionalism of accountants.

Academic institutions of higher learning have played a significant role in delivering educational and training programmes including IT skills for accounting students. To date, there is very limited integration of IT elements in accounting education (Lai and Nawawi 2010). Most Malaysian universities have taught a very common tools or software; such as, word processor and spreadsheet. Besides, there are very limited advanced technologies software and tools, i.e. electronic resource planning (ERP) and electronic data interchange (EDI) that have been blended into accounting curriculum as a preparation for accounting fresh graduate in meeting job or employers’ requirements.

According to MIA website, MIA has a significant role in contributing guideline for accounting fresh graduate and accountants to improve their performance and professionalism. Most of educators and practitioners have referred MIA to design accounting curriculum and to improve skills and competencies. MIA also plays a part in developing and advancing the global accounting profession through its involvement in organisations such as IFAC. Unfortunately, this institute has not created its own guideline in providing accountants training and skills requirements for IT utilisation; rather it used IFAC’s. However, there are no common grounds among the abovementioned sources. Each of them is looking in generic skill set rather than specific set, i.e. accounting. This assumption is also been reflected to studies in IT competencies.
Although professional accountants’ IT competencies are required by the professional standards set by IFAC, very little is known about professional accountants’ IT competencies levels, especially in developing economies such as Malaysia (Ismail and Abidin 2009). There are very few studies available that have investigated IT competencies for professional accountants in developing economies. These studies, however, only use one dimension i.e. IT skills to measure accounting practitioners’ competence in using IT. Ismail and Abidin’s study found a relatively low level use of technology by participants, especially in advanced technologies such as EDI, CASE tools, agent technologies, database design and application service provider, even though these technologies are considered as important Malaysia (Ismail and Abidin 2009). On the other hand, Lai and Nawawi (2010) study reveal that the usage of e-tax applications is still not pervasive in tax practice among accounting practitioners. However, the findings of these studies indicate that only a few technologies such as word-processer, electronic spread sheet, email, electronic search and retrieval and small accounting software are considered as adequate by the participants in the attempts to identify the critical IT skills among them.

In conclusion, both studies suggest that the participants may not yet understand the relevance of some technologies relating to accounting work (Ismail and Abidin 2009; Lai and Nawawi 2010). Moreover, these studies only focused on the accountant as an auditor and tax practitioner, thus, the scope of this research needs to be extended to professional accountants in general. It makes this research highly appropriate to Malaysian context, because this research not only takes some multidimensional perspectives but also looks as the IT competencies required for professional accounting in general.

3.1 What Constitutes IT Competencies for Professional Accountants?

IFAC through International Education Guideline 11 (IEG11) encourages professional accountants to have competencies in IT. However, the standard required of IT competencies is not specified and does not give a specific approach on how to develop the IT skills and competence. Therefore, the information systems literature has been reviewed to identify what dimensions or elements have been employed in previous studies. Most of the outcomes of these studies have been a list of IT skills such as the ability to use spread sheets, word processor, accounting packages and web browser that accountants must be proficient with (Lai and Nawawi 2010; Greenstein and McKee 2004). Information systems literature indicates that IT related competencies dependent upon a number of other dimensions or skills (Carnaghan 2004). Modern or contemporary professional accountants are required to provide leadership and management support in addition to their routine jobs. It is therefore, essential that professional accountants must have requisite organisational, management, behavioural, and people skills (Jackling and DeLange 2009; Che-Abdul-Rahman et al. 2011).

These skills provide necessary support to IT skills so that professional accountants can perform their jobs effectively. It is, however also important to note that experience of accountants, the culture of organisations, and the formal training of accountants will always have significant influence on the level of competence in accountant possesses in operating, designing and using IT (Pollard and Steezkowicz 2004; Basselier et al. 2003; IFAC 2003; Duedhl et al. 2005; Havelka and Merhout 2009). Table 3 illustrates multi-dimensional IS knowledge, skills and abilities derived from various authors.
The literature suggest four different set of skills that are required by a knowledge worker in the contemporary paradigm (Aldag and Kuzuhara 2002). These skills are technical, organisational, people and conceptual or TOPC skills framework. Technical skills involved specialised knowledge about methods, processes, and techniques designed to carry out specialised activity. Organisational skills are skills enable employees or workers to plan and carry on activities effectively. People skills deal with human behaviour and interpersonal process and conceptual skills include analytical ability, creativity, efficiency in problem solving and ability to recognise opportunities and potential problems.

Professional accountants’ skills for success are highly required to react quickly and effectively in organisations. Thus, to be an effective accountant, the right mix of skills has to be developed to sustain the implementation of TOPC skills framework as illustrated in figure 1.

This TOPC framework support accountants in everything they do during the accounting processes such as, auditing, recording daily financial transactions, preparing financial statements and making decisions. For that reason, the American Institute of Certified Public Accountants (AICPA) through Core Competency Framework asserted the values of
professional accountants as competitive by identifying key TOPC framework elements such as communication and leadership skills, negotiation, strategic, problem solving and critical thinking and personal improvement as well as project management cited by Institute of Management Accountants (Dillom and Kruck 2004). In fact, good TOPC framework is critical to the prosperity and even the survival of organisations (Aldag and Kuzuhara 2002).

![The TOPC Framework](Image)

**Figure 1. The TOPC Framework**
*Source: Developed by the Author*

### 4 PROPOSED FRAMEWORK

The research framework illustrated in figure 2 shows foundation for this research which demonstrated the multi-layered and multi-tied framework of IT related competencies for professional accountants. The main research question is “How competent professional accountants working in Malaysian small to medium accounting practices are in terms of using IT?” followed by three sub-questions:

1. What are the necessary IT skills set required for professional accountants?
2. What are the IT related competencies that help professional accountants to perform their job better?
3. What is an appropriate framework for developing IT related competencies for professional accountants in Malaysian small to medium accounting practice.

The first inner layer of the framework represents the first sub-question of the research which deals with the generic skill set of IT competencies. It takes a comprehensive view of IT competence for professional accountants, and investigates the issue at hand in technical, organisational, people, and conceptual dimensions.
The second layer of the framework seeks to find the answers for second sub-question i.e. to identify the IT related competencies that help professional accountants to perform their job properly. The aim is to employ the above mentioned skill set in the perspective of experience, organisational culture, formal accounting education and the international standard for accounting practices. These elements are major contributing factors that set the standard of quality of professional accountants.

The third layer of the framework recognises the actual competencies of professional accountants in using IT for jurisdiction specific. For the purpose of this research, it will be focused to Malaysian jurisdiction specifically within Malaysian Small to medium accounting practices. It addresses improvement of the main accounting professional regulators in Malaysia who set the national accountants standard through national accounting board. In addition, higher education has been the main education provider in generating accounting graduates in Malaysia.

5 RESEARCH METHODS

This research will explore IT-related skills and competencies for professional accountants. This research therefore, will employ a qualitative interpretive research methodology with exploratory research study. Qualitative research methodology approach is represented by distinctive techniques and tools (Sekaran 2003). It involves non-numeric data to provide deeper understanding of phenomena within its context and creates a strong relationship...
between the phenomena under study and the researcher [16]. This method provides the best gaining insight to comprehend the issues. Data will be collected through interviews from accountants (including junior, senior accountants and accountants who involve as manager of small to medium accounting practices), academician and representatives from accounting professional regulators in Malaysia. The range of their industry setting helped to understand the phenomena in a broader scope. The interviews will be recorded electronically and transcribed, coded and analysed. Thematic analysis will be used to analyse the data collection and aided by Nvivo. This type of analysis defines as the process of encoding qualitative information (Boyatzis 1998).

6 CONCLUSION

In summary, IT related competencies among professional accountants are well addressed within Malaysian small to medium accounting practices. The changing nature of the business environment in which professional accountants work has been integrated with IT in every job aspect. To maintain a major role in business, accountants must improve themselves in IT application and extend their skills and techniques to embrace the new systems and technologies. Otherwise, there would be unutilised technologies, thus impeding accountants to provide better service. In a nutshell, all aspects of technical, conceptual, organisational and people skills need to be possessed by accountants to become well rounded professionals. This research will develop theory related to IT competencies relevant to the entire life cycle of work process of professional accountants. The developed theory could be tested and used by future researchers to study IT competencies in other professions and other countries. Furthermore, it is expected that the findings of this research will formalise professional accountants’ IT competencies framework and will provide support to on job training and career planning for professional accountants.

References


