

INTERNET TECHNOLOGIES USAGE BY AUDIT FIRMS IN MALAYSIA

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ABSTRACT

This study provides insights into audit firms' perceptions of facilitators and inhibitors of the usage of Internet technologies. Data were gathered from 14 in-depth semi-structured interviews conducted with audit partners/managers of audit firms located in northern Malaysia. Cross-case analysis shows that perceived Internet benefits, the need for online communication, lack of time in accessing and exploring Internet applications, and lack of internal information technology (IT) expertise are closely related to entry-level Internet technologies usage among small and medium-sized practices (SMPs) in Malaysia. This study highlights the importance of perceived benefits in influencing internet usage and suggests both limited-users and non-users to familiarise themselves with Internet applications. Findings indicate that lack of time and internal IT expertise are among the key inhibitors to the usage of these technologies. Top management should provide the necessary incentives to promote Internet usage. This study contributes to the advancement of knowledge in IT adoption and addresses the issue of low IT usage among SMPs in Malaysia.

Keywords: entry-level Internet technologies, small and medium-sized practices, audit, Malaysia, IT usage

INTRODUCTION

Advances in transportation, information technology (IT), and communications infrastructure have spurred remarkable growth of international business activities. As a result, cross-border trades in goods and services and investments have increased dramatically (The Malaysian Institute of Accountants [MIA], 2012). To remain competitive, many businesses have leveraged the advancements in information technology and web-based applications in developing their resources. The accounting industry has not escaped the significant challenges facing businesses worldwide. As the provider of audit,

advisory/consulting, tax, accounting and compilation services to businesses, the accounting industry must closely follow the steps of their client's efforts to internationalise to render effective services. Solomon and Trotman (2003, p. 409, as cited in Janvrin, Bierstaker, & Lowe, 2008) indicate that the audit profession is "rapidly advancing in response to changes in its environment."

In addition, the convergence of International Financial Reporting Standards (IFRS) also exerts great pressure to keep pace with the development of international accounting standards for accounting practitioners. In a recent poll conducted by the International Federation of Accountants (IFAC) of small and medium-sized practices (SMPs), keeping up with accounting standards and regulations and attracting and retaining clients were named as the top challenges facing their practices (IFAC, 2012). Therefore, the capability to exploit mediums that enable accountants to reach international connections and network is critical for audit firms to be competitive.

As noted by Hamill (1997), the Internet represents an efficient medium for accessing, organising, and communicating information. Public accounting firms engage in providing timely advice to their clients and are often forced into rapid IT adoption to remain competitive (Ellis, Casey, & Fleherty, 2000). Yet, much of the academic research into Internet adoption and usage has focused on small and medium-sized enterprises (SMEs), (Alam, 2009; Pontikakis, Lin, & Demirbas, 2006; Walczuch, Braven, & Lundgren, 2000). We have found little, if any, systematic research into the extent of Internet technology usage by accounting practitioners.

In general, the audit profession is facing increasing challenges from growing complexities in the business environment, evolving accounting standards and a more stringent regulatory landscape. According to data from the Malaysian Institute of Accountants (MIA) web site, there are more than 1,000 audit firms in Malaysia, ranging from the smallest one-man-show to the largest with more than 1,000 employees. The considerable number of audit firms in Malaysia denotes the fierce and dynamic competition within the industry.

To create and sustain their competitive advantage, large audit firms have made significant IT investments (Banker, Chang, & Kao, 2002; O'Donnell, & Schultz, 2003). In effect, IT has dramatically changed the audit process, and audit firms are encouraged to adopt IT and use IT specialists when necessary (American Institute of Certified Public Accountants [AICPA], 2001; 2002; 2005; 2006; Public Company Accounting Oversight Board [PCAOB], 2004, as cited in Janvrin, et al., 2008). While the impact of IT in businesses has grown exponentially over the last two decades, few studies examine the use of IT,

particularly outside of the largest audit firms (Banker et al., 2002; Janvrin et al., 2008).

It is argued that the inability of smaller audit firms to compete with larger firms regarding IT investments may have caused potential entry barriers and given rise to audit effectiveness and efficiency issues (Janvrin et al., 2008). SMPs are also facing challenges such as growing and changing expectations from their small and medium-sized enterprises (SMEs) clients, challenges in capacity and capabilities building including talent attraction amidst competition from larger firms and other industries (The Association of Chartered Certified Accountants [ACCA], 2011). In recognition of the importance of SMPs in supporting SMEs, IFAC has implemented various initiatives to address the needs of SMPs. Blackburn and Jarvis (2010) suggest that research focusing on SMPs is very limited, and thus, much research is needed to enhance a steady accumulation of knowledge about SMPs.

OBJECTIVES

In response to the calls by the IFAC to enrich the knowledge base about SMPs to address their needs, this study contributes to the extant literature by exploring factors and reasons that influence the usage of entry-level Internet technologies. The perceptions of large audit firms are also examined to identify the gap between large audit firms and SMPs regarding the usage of Internet technology in rendering their professional services.

The first objective of this paper is to study the perceptions of Internet technology usage by collecting and analysing the views and opinions of a sample of audit firms to identify possible explanations for different levels of Internet usage. It provides data on how audit firms of different sizes use the Internet, as well as their perceptions about factors affecting its usage. To achieve this core objective, an in-depth, contextually rich analysis of the perspectives of 14 large and small and medium practices among Malaysian audit firms are documented and presented.

Second, to bridge the research gap about SMPs, this study attempts to examine the status quo of Malaysia's SMPs in leveraging Internet technology and to benchmark it against Big 4 firms. Examining entry-level web technologies usage among audit firms is important because this sheds some light on identifying issues concerning basic Internet adoption that will have a significant impact on the utilisation of advanced web technologies in the future.

Anecdotal evidence suggests that most of the SMPs in Malaysia have not progressed beyond the basic usage of web technologies, such as e-mail, web browsing, and web presence. Data about factors influencing entry-level Internet usage among SMPs are lacking, and this has restricted the understanding of the issues and challenges encountered by SMPs. Hence, there is a strong argument in favour of conducting studies on the usage of entry-level technologies (Akkeren & Cavaye, 1999) in Malaysia.

Unlike the Big 4 firms whose international affiliations require them to adopt similar IT practices, SMPs are expected to face more constraints in terms of their resources. Among the biggest challenges faced by SMPs is the ability to cope with the pace of regulatory and standards changes. The ability to leverage opportunities offered by the Internet is inevitably of high relevance to SMPs. Data collected from this study thus intend to present more evidence about the status quo of SMPs from the Malaysian perspective and to enhance global understanding about SMPs.

LITERATURE REVIEW

Internet technologies range from entry-level (web browsing, web sites, and e-mail) to sophisticated (e-commerce and video-conferencing) (Akkeren, & Cavaye, 1999). To date, most researchers have tended to focus on studies examining advanced Internet technology adoption, with an emphasis on countries or industries with high Internet penetration. For example, e-commerce adoption among SMEs is a popular topic that has attracted considerable attention from information technology (IT) researchers. Although studies on adoption of entry-level technologies have appeared to be less critical in developed countries, such studies are still highly relevant in other parts of the world, particularly among developing countries that are lacking behind developed nations in terms of resources.

Basic Internet technologies such as e-mail, web browsing and web sites are among the most widely used Internet applications and provide numerous user benefits. Mehrtens, Cragg and Mills (2001) suggest in their study of Internet adoption that three key benefits can be identified:

1. E-mail provides efficiency benefits over traditional methods of communicating with customers and others.
2. Web browsing serves as an effective tool for employees to gather information, for example, about competitors and government regulations.
3. Web sites provide an avenue to build the firm's image and to promote it nationally and internationally.

Critical Factors Affecting Organisational Internet Usage

Because there is little literature available on Internet usage by audit firms, earlier research on Internet adoption among organisations is reviewed. Various models are suggested by different researchers regarding the adoption and usage of Internet-based technology (for examples, Alam, 2009; Dholakia, & Kshetri, 2004; Kula & Tatoglu, 2003; Lynn, Lipp, Akgun, & Cortez, 2002; Nguyen & Barrett, 2006; Riquelme, 2002; Walczuch, Braven, & Lundgren, 2000). Each researcher suggests different factors affecting Internet usage, although certain similarities can be found among some of these models.

A study by Walczuch et al. (2000) finds that the main barrier to Internet adoption and developing a web presence is the concern that the Internet or the web site will not lead to greater efficiency or lower cost. Another key barrier identified is the feeling that the Internet or a web site is not suitable for a particular business. In other words, firms would be passive in using Internet technologies should they fail to observe the value of having a web site or Internet connection. In addition, certain industries are not suited to having a web site or using the Internet simply because of the nature of their business.

Lynn et al. (2002), in their study of World Wide Web adoption, suggest that the adoption of the web is positively influenced by its perceived usefulness. This finding is in line with the study by Walczuch et al. (2000) in which the more a firm perceives the benefits of the Internet, the more likely it is to adopt web-based technology.

Similar research conducted by Riquelme (2002) also concludes that the main reason for establishing an Internet connection is to gain a competitive advantage, regardless of the firm's size. Competitive advantage is one of the key benefits to web usage. As such, this study further concludes that perceived benefits drive Internet usage.

An alternative is suggested by Kula and Tatoglu (2003) who focus on relevant firm- and industry-specific factors that influence the extent of Internet usage. They find that the international experience of the SMEs is positively related to the usage of Internet. Firms that serve the international market tend to benefit from the increasing pace of Internet technologies that offer economical ways of serving those markets.

More recently, Dholakia and Kshetri (2004) suggest that two specific factors contribute to SME's involvement with the Internet: prior technology use and perceived competitive pressure. They find that technologies already existing in an organisation influence the future adoption of new technology. For instance,

the incremental cost and knowledge required to use the Internet will be much less if a firm already owns a computer and a modem. Perceived competitive pressure, an external factor, is also found to exert a positive influence on Internet adoption.

Technical compatibility and cost of adoption are two other factors addressed by Alam (2009) in his study of Internet adoption among Malaysian SMEs. When companies have adequate infrastructure for adoption and it is compatible, the adoption and utilisation of the web is usually high because the companies are not required to invest a large sum in the infrastructure (Bazar & Boalch, 1997). The cost of adoption can be divided into two types: Internet access fees and company income (Gattiker, Janz, & Schollmeyer, 1996). The lower the cost of adoption and the higher the income of the company, the more likely it is to adopt a new innovation.

Another characteristic frequently found to significantly affect Internet adoption among organisations is firm size (Dholakia, Jean, Bitta, & Dholakia, 1993; Ramdani, & Kawalek, 2007). Larger firms tend to have the necessary skills, resources and experience (Damanpour, 1996) to initiate deployment of new technology much more easily than can their smaller counterparts. In addition, it is reasonable to assume that large firms need to stay at the technological forefront because of their larger scale of operations.

Based on the relevant literature regarding Internet adoption and usage, it is observed that the critical factors that could possibly affect the usage of entry-level Internet technologies among audit firms can be categorised into two groups: facilitators and inhibitors. The widely examined factors for facilitators are perceived benefits, prior technology use, technical compatibility, international experience, competitive pressure, and firm size. The critical influence factor for inhibitors is cost of adoption.

METHODOLOGY

Because there is no large body of literature to draw from for the study of entry-level Internet technologies adoption and usage among the audit profession, an in-depth investigation in the form of a field survey was justified (Yin, 1994). This approach was particularly appropriate for this study because it provided a means to review theory and practice iteratively (Levy & Powell, 2003). To maximise robustness, we chose cases that varied in terms of several characteristics relevant to the research question (Eisenhardt, 1989).

The data were gathered from 14 in-depth semi-structured interviews conducted with audit partners/managers of audit firms located in northern

Malaysia. The interviews were based on a list of questions prepared by the researchers. To ensure consistency and reliability, standard interview guidelines were used (Iacovou, Benbasat, & Dexter, 1995). The interviewees were guided and encouraged to think through issues and to provide new factors/additional constructs deemed relevant to the firm throughout the interviews.

Audit firms in the northern region of Malaysia (Perlis, Kedah, Penang, and Northern Perak) were used in the case selection. This region housed approximately 150 audit firms, including the Big 4 and SMPs. Conventionally, audit firms were identified as Big 4 or non-Big 4. Audit firms from both groups were chosen for this study. As the market leader in the audit profession, the Big 4's Internet usage were used as the reference point for comparison.

The list of audit firms and branches operating in northern Malaysia was requested from the Malaysian Institute of Accountants. All the Big 4 audit firms and three second-tier auditors in the region were invited to participate in this field survey. Another ten small and medium-sized audit firms were also invited to participate. In total, 17 audit firms of different sizes were contacted via telephone and sent letters requesting an interview (via postal mail or fax). The research background and research objectives together with the expected outcomes of this study were also attached to the interview request letters in the hopes it would lead to more insightful responses. A total of 14 audit firms agreed to an interview with the researchers. The unit of analysis was the audit firm.

The field survey was administered between June and September 2009, and all the interviews took place at the offices of the interviewees. Each interview lasted one to two hours. Only four interviews were tape-recorded because the other ten respondents expressed a wish not to be tape-recorded. Hence, the evidence collected from those firms was in the form of detailed notes taken during and immediately after each interview. The tape recordings were transcribed as soon as possible after each interview.

The interviewees were audit managers or partners because they were the top management personnel making important decisions regarding Internet adoption. Because of their daily involvement in the operation of the firms, these interviewees were able to provide insightful explanations as to why they chose whether to use each of the basic Internet technologies. In addition, information from secondary sources such as the firms' web sites was also gathered.

The interviews initially gathered demographic profiles of the audit firms: organisational structure, number of staff, and years in operation. The interviews then probed the entry-level Internet technologies used by the particular firm. First, we asked about the types of IT hardware and software available in the firm, how

the maintenance was performed, annual investment in IT, etc. At the same time, we investigated whether each firm had an Internet connection, the extent of e-mail usage for communication, the use of web browsing to look for information, and if they had a web site. The interviewees were asked to think about how frequently they used all these entry-level Internet technologies and the situations under which they used these Internet applications. Finally, the core of our interview was exploring the perceptions of auditors regarding factors affecting the usage of these fundamental Internet tools. The interviewees were encouraged to think about what factors facilitated or hindered the adoption of Internet technologies in their firms.

ANALYSIS AND DISCUSSION OF FINDINGS

The 14 audit firms interviewed have been categorised into three main groups based on how much they use basic Internet technologies: Group A firms use entry-level Internet technologies extensively; Group B firms have moderate Internet technologies usage; and Group C firms have minimal or limited usage of Internet technologies.

Each group is presented separately in detail in the following section. It encompasses the manager/partner's perceptions regarding the factors that facilitate or inhibit the usage of entry-level Internet technologies in their respective firms. The analysis then proceeds with a cross-case comparison that addresses the research objectives.

Group A (Extensive Users)

Table 1
Group A (Extensive users)

Case	Type of firms	Number of staff in each office	International affiliation	Number of offices in Malaysia
A1	Big 4	200	Yes	17
A2	Big 4	More than 100	Yes	10
A3	Non-Big 4	50	Yes	4
A4	Big 4	140	Yes	7
A5	Big 4	More than 100	Yes	8

Profiles: This group consists of five large audit firms that are internationally affiliated with offices throughout the world. The number of staff in most of the firms exceeds 100 (except the non-Big 4 audit firms with approximately 50). All have a meaningful proportion of revenue derived from multi-national

corporations (MNCs) and listed companies. There is at least one full-time IT staff to take care of the computer and Internet applications in each firm. All the staff members in each firm have free access to the Internet. They use intra-firm e-mail extensively because all their policy matters are sent through e-mails. All staff, irrespective of their job position, have their own intra-firm e-mail accounts. The staff in each firm relies on web browsing for the latest updates regarding accounting and auditing standards and, in some circumstances, utilise it for e-learning. The staff can access their own firm's resources, as well as search the Malaysian Institute of Accountants or Malaysian Accounting Standards Board (MASB) web site for additional information pertaining to their work. Instead of using facsimile machines as a medium to exchange documents, firms in this group transfer files via e-mails or GROOVE. All the firms in this group have their own corporate web sites that were established at least 10 years ago by their own internal IT expertise. Each firm has a team responsible for updating its own web site and posting the latest developments regarding the firm on the site.

Facilitators: All the firms in this group have a marketing and development department in their respective Kuala Lumpur main offices that develops and contributes to the contents of the Malaysian web site. All the firms are sizeable enough to have an internal IT department (internal expertise) to maintain and update the web sites. All the managers/partners are of the opinion that their brand names (international experience) and large size is an important factor in facilitating their web adoption. Because all the larger audit firms have a web presence, one of the audit partners is of the opinion that "since everyone is having a web site, then we should also adopt one" (A2). Specifically, only this group perceives web sites as a medium for marketing. The firms find that web sites can be a means to advertise their specialised services tailored to specific industries. Furthermore, the annual commitment to IT applications can be much higher than in the other two groups. As one of the audit partners mentions, "our annual investment in IT could be easily 20% of our annual revenue to always keep ourselves abreast with the latest developments" (A2). Most of the audit managers/partners consider web sites an important medium to replace the traditional method of recruiting prospective employees. Now, job seekers need not submit hard copies of their applications but instead apply through their respective web sites. The Internet is also seen as a medium for knowledge sharing among member firms.

Inhibitors: The main concern raised by this group regarding the use of e-mails, web browsing, and web sites is that most of the clients do not browse the audit firm's web site, and the use of e-mails as a means of communication is minimal. The e-mails are mainly for internal use, while the web site is mainly for prospective employees. This restricts the opportunity for the audit firms to expand and enhance the features available on the web site.

Group B (Moderate users)

Table 2
Group B (moderate users)

Case	Type of firms	Number of staff in each office	International affiliation	Number of offices in Malaysia
B1	Non-Big 4	15	Yes	6
B2	Non-Big 4	10	No	3
B3	Non-Big 4	10	Yes	3
B4	Non-Big 4	10	Yes	5
B5	Non-Big 4	50	Yes	3
B6	Non-Big 4	40	Yes	9

Profiles: This group consists of second-tier and internationally affiliated medium-sized audit firms with several branches throughout Malaysia. Firms in this group have a workforce size ranging from 10 to 50. None of the firms employ permanent full-time IT staff to manage the Internet applications. The clientele consists of mainly SMEs and co-operatives, although some of them do have clients from listed companies and MNCs. Each of the staff members in these firms has access to the Internet, but not all of them have their own internal e-mail accounts. The employees use e-mail to communicate with and send files to certain IT savvy clients. "Files are e-mailed, while queries are asked and answered through Yahoo Messenger" (B2). The staff occasionally use the Internet to search for work-related information and resources, for example, the Inland Revenue Board (IRB) web site. All the firms have a web site, but some of these web sites are still in the process of development. The development of the web sites is mostly outsourced to web designing firms because the firms do not have internal expertise to undertake such work. It is worth noting that most of these web sites are not maintained regularly, and some are never updated after their establishment. As one of the audit partners mentions, "to develop a web site is not difficult, but to maintain is of difficulty" (B1).

Facilitators: The purpose of having a web site is simply to let people know about their firm. To portray themselves as international firms, they would need to set up their own web site as an ancillary medium to allow clients to obtain additional information pertaining to their firms. This group feels that the cost of having a web site is not too burdensome, but sometimes it feels that the benefits derived from web presence are not apparent and tangible. As such, some of those web sites are left ignored and are not updated on a regular basis. This group feels that the staffs are technically capable of using e-mails and searching the Internet and that the cost of having Internet access is justifiable given the up-to-date

information contained on the Internet and the opportunity for efficient communication with others.

Inhibitors: Most of the interviewees are not very happy about the experience during and after the web site development. One audit manager became animated when speaking of the attitude of the web site designing company. The audit firm had to push the web site development company to update the information on the web site. The web site development firm is regarded as passive in this instance. Furthermore, sometimes the web site development firm does not respond to the firm's needs immediately, with the reason given that they have many other clients to serve. E-mail is not perceived as useful by employees who tend to rely on the telephone to make contact with others. Another inhibitor of web sites, e-mails, and web browsing is lack of time. Employees are busy with daily audit engagement and have no time to explore and use each of the Internet applications to the fullest potential.

Group C (Limited users)

Table 3
Group C (Limited users)

Case	Type of firms	Number of staff in each office	International affiliation	Number of offices in Malaysia
C1	Non-Big 4	4-5	No	1
C2	Non-Big 4	20	No	1
C3	Non-Big 4	10	No	4

Profiles: This group consists of three audit firms. None is internationally affiliated, and the staff number ranges from 4 to 20. The clientele consists solely of SMEs and co-operatives, with no exposure to listed companies or MNCs. No full-time employee is designated to manage the computer or Internet applications in any of these firms. One of the firms has neither established a web site nor intends to do so in the near future. The other two firms that have web sites do not maintain them properly. Consequently, they remain the same as when they were initially developed. Not all staff can access the Internet, and only certain computers have an Internet connection. Internet access is only for file transfer, and the firms rarely rely on online MIA or MASB resources for accounting-related information.

Facilitators: The pressure from certain clients to communicate via e-mail prompted Internet connection within these firms. There are clients who requested the firms to send drafted financial statements to them via e-mail. The firms

acknowledge that e-mail is an efficient means of sending files electronically, especially when the recipient is at a remote location, but they restrict the use of e-mail to file transfer only. They prefer to use facsimile if the documents are not lengthy. Contacting clients through the telephone is preferred over e-mails because the firms can obtain instantaneous replies from the clients. The audit partner will attend professional seminars to obtain updates in accounting and auditing and will brief the staff. As such, the staff does not perceive web browsing as necessary for job function updates.

Inhibitors: The firms find themselves struggling to keep updated with Internet applications because there is no internal IT expertise available within the firms. These firms see no value in having a web site other than to introduce the firm to Internet users. They opined that a web site could not bring new customers to the firm and, hence, that web absence or presence makes no difference to the firm. As such, they either lack a web site or are not interested in maintaining the established web sites. Furthermore, they find they have less scope to update (not many things to post on the web site) and, thus, lack the passion to regularly update the web site. Lack of formal IT training for the staff is also identified by these firms as an important inhibitor to the further utilisation of Internet technologies. All staff are too busy with their tasks, and there is actually too little time left for them to acquire any further knowledge about the technology. Furthermore, the small scale of business and of the workforce does not necessitate the adoption and diffusion of the technologies.

CROSS-CASE ANALYSES

This study aimed to understand the factors affecting the usage of entry-level Internet technologies among large audit firms and small and medium practices and to determine their adoption status. As suggested by Eisenhardt (1989), cross-case analysis was undertaken in which a cluster of cases was compared and contrasted to determine if there were any variations or similarities in the data. Each of these audit firms provided insightful explanations as to what factors influenced Internet usage, and different factors were found to impact the decisions whether to use the Internet.

Facilitators

The following table outlines the specific facilitators perceived by each of the three groups. The factors for each group were rated as "high", "average", "low" or "not applicable (n.a.)", depending on the level of importance placed on each facilitator by the audit managers/partners.

Table 4
Facilitators for each group of study

Facilitators	Group A (Extensive users)	Group B (Moderate users)	Group C (Limited users)
Perceived benefits	High	Average	Low
Internal technical expertise	High	n.a.	Low
Need for online communication	High	Low	Low
Presence of external pressure (International affiliation) to use IT	Yes	Yes	No
Firm size	Large	Large/ Medium	Medium/Small

All the Big 4 and one second-tier audit firms were classified as extensive users. This group perceived more benefits in adopting entry-level Internet technologies in comparison to the limited users who perceived little benefit. The limited users raised concerns about the availability of internal IT expertise, while the extensive users were confident in their own internal expertise in handling IT-related issues. The extensive users group felt a need to communicate online, while moderate and limited users did not feel this necessity.

The limited users actually had little to say about potential facilitators. They saw no external pressure to embrace even basic Internet technologies in the firms compared to extensive and moderate users who received pressure from external sources to use the Internet. In addition, the size of the firm was believed to facilitate the adoption of entry-level Internet technologies. The larger the firm, the more Internet technologies it tended to adopt.

While many facilitators have been identified by the groups in influencing the adoption of Internet applications, the audit manager/partners of this group placed much importance on the following facilitators to Internet technology adoption:

1. Perceived benefits
2. Need for online communication

Inhibitors

The following table outlines the inhibitors perceived by the manager/partner in each of the groups. Again, each of the factors was rated as "high", "average", "low" or "n.a." (not applicable), depending on the level of importance placed on each inhibitor by the manager/partner.

Table 5
Inhibitors for each group of study

Inhibitors	Group A (Extensive users)	Group B (Moderate users)	Group C (Limited users)
IT professionals are passive and not helpful	n.a.	High	n.a.
Too expensive to set up	Low	Low	n.a.
Reluctance to use Internet technologies by clients	Low	n.a.	Average
Lack of internal IT expertise	Low	High	High
Lack of formal training	Low	n.a.	High
Lack of time in accessing and exploring Internet applications	Low	High	High

Consistent with the findings in Table 4, limited users perceived many more inhibitors to adopting these technologies than did extensive and moderate users. Limited user interviewees were reluctant to adopt Internet technologies, focusing most of the discussion on lack of time in accessing and exploring Internet applications, formal training, and internal IT expertise. Limited users opined that top management placed little emphasis on Internet application usage, citing the lack of time to explore the applications and the lack of internal IT expertise. Moderate users were particularly concerned about the attitude of IT professionals who were not helpful, giving the support from these IT firms a negative evaluation.

The limited and moderate users focused much of their attention on discussing the following factors that they deemed as important inhibitors to the adoption of entry-level Internet technologies:

1. Lack of time in accessing and exploring Internet applications
2. Lack of internal IT expertise

Internet usage gap between SMPs and Big 4 audit firms

As observed from this study, all of the Big 4s and only one SMP are categorised as extensive users. The other nine SMPs are either moderate or limited users. This shows there is still an Internet usage gap between the Big 4 and SMPs, in which SMPs still lag far behind the Big 4.

One of the important factors leading to the current scenario is that the Big 4 are able to invest a large amount of resources in technology (Mohamad-Nor, Shafie, & Wan-Hussin, 2010) and Internet-related technology, including

hardware and software. This gives them a huge advantage in the usage of Internet technologies over the SMPs. The smaller size and scale of businesses operated by the SMPs, coupled with financial resource constraints, have left them behind in terms of Internet usage compared to the Big 4. SMPs are not able to employ internal IT staff to take care of their own firm's technologies.

Another contributing factor making SMPs lag behind in using Internet technologies is the clientele. Most of the SMPs' clients are small and medium-sized companies, with few or no MNCs or listed companies. This clientele structure has disfavoured Internet usage among SMPs. The SMPs tend to see no value in using Internet technologies because their customers are also limited users of Internet applications. For example, an SMP will tend not to use e-mail for communications if the client perceives little need for online communication.

Another important factor that explains the Internet usage gap between SMPs and the Big 4 is perceived benefits. The Big 4 perceive e-mail as a medium for exchanging documents, their web site as a medium for marketing and recruitment, and the Internet as a medium for knowledge sharing among member firms. On the other hand, SMPs see no or little value of having a web site and feel that the benefits derived from internet applications usage are not apparent and tangible. This perception discrepancy between Big 4 and SMPs may well explain why the usage gap is still evident between the two groups.

CONCLUSIONS

Findings from the field survey of 14 audit firms coupled with literature research revealed that some factors may be more important than others. The facilitators suggested by literature and mentioned by interviewees were the need for online communication, international experience, competitive pressure, and firm size. Respondents highlighted two important facilitators in Internet usage: perceived benefits and need for online communication. In this study, these two facilitators were found to exert significant influence on entry-level Internet adoption among audit firms.

For the inhibitors, previous research and this study concluded that cost of adoption was the primary factor inhibiting Internet usage. The interviewees identified two other important inhibitors: lack of time in accessing and exploring Internet applications and lack of internal IT expertise. These two inhibitors were found to restrain audit firms from using entry-level Internet applications.

This study has shown that the critical factors identified in the earlier literature can be used as a theoretical basis for understanding factors impacting

the adoption of basic Internet technologies among audit firms. Many of the critical factors mentioned in the literature were found to be influential in affecting basic Internet application usage among audit firms in this study. However, three important variables can be added to the literature:

1. need for online communication
2. lack of time in accessing and exploring Internet applications
3. lack of internal IT expertise

Findings from this research revealed that these three factors, together with perceived Internet benefits, played a pivotal role in influencing Internet technologies adoption. The findings also suggested that small and medium-sized practices were relatively slow to adopt entry-level Internet technologies compared with the Big 4. Because SMPs' audit firms risk being left behind by missing out on business opportunities provided by the Internet, it was important to identify and address factors affecting the adoption of the relevant technologies. Because there was no comprehensive model of these factors, the literature on factors affecting Internet adoption among organisations was used as the basis for an initial research framework. This study used evidence from 14 audit firms to identify the factors affecting entry-level Internet usage.

In particular, interview findings from the present study indicated that "perceived benefits", "need for online communication", "lack of time", and "lack of internal IT expertise" appeared to be important factors affecting basic Internet technology usage. These findings suggested there was a need to improve the awareness of Internet benefits among audit firms and to provide Internet training to the staff of audit firms. Findings from Mohd Iskandar and Mohd Sanusi (2011) also suggested that audit firms need to design training programmes that help auditors improve their task performance. The resulting model has added substantially to the understanding of the decision by audit firms on Internet usage. Based on the findings presented above, the following model is proposed for future empirical study to be tested on a large scale so that the findings can be generalised and to provide more concrete evidence about factors influencing the usage of Internet technology within the audit profession.

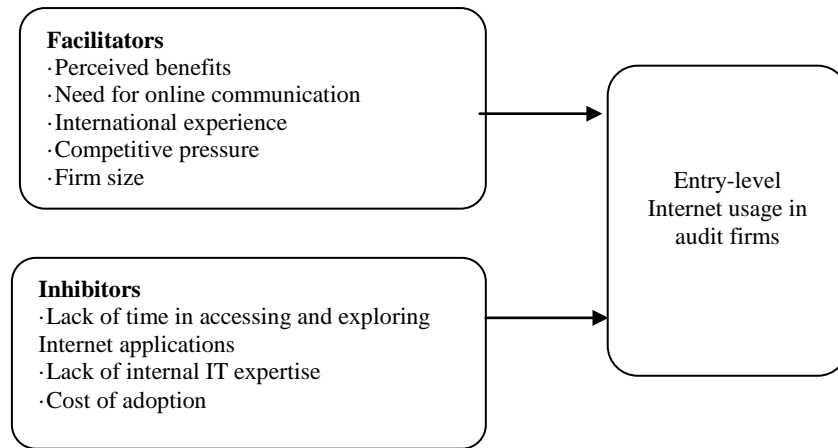


Figure 2. Factors affecting Internet technologies usage by audit firms

IMPLICATIONS

This study has implications for both research and practice. For research, this study is among the scant literature available that examines the usage of entry-level Internet technologies with the main focus on SMPs by benchmarking against large audit firms. The findings from this research could be used to study basic Internet usage in other industries. The revised model proposed in this research could also be widened to study audit firms in other southeast Asian countries with Internet usage similar to Malaysia's. Because this study has introduced some new constructs in the model, these new variables should be incorporated in future research to confirm their significance.

Because SMPs make up a significant percentage of audit firms in Malaysia, this study not only focuses on larger firms but also looks at Internet usage among the SMPs. Responding to the call by IFAC's Small and Medium Practices Committee to raise the profile and build the capacity of SMPs globally, it is important that the SMPs in Malaysia adopt and make use of Internet technologies strategically. This study provides a model of Internet usage by audit firms with the main intention of assisting audit firms, particularly the SMPs, to move forward in Internet technologies usage to compete in the increasingly competitive global market.

Findings from this study reveal that large audit firms have invested proportionately more in Internet technologies than have the SMPs. This study would have the greatest impact on SMPs because they can benefit from the proposed model to strategise their Internet technologies adoption and usage.

SMEs would also benefit indirectly should SMPs adopt and diffuse Internet technologies because SMEs, the typical clients of SMPs, are adopting the Internet as a means to compete on a global scale. Potential commercial functions between SMEs and SMPs could be performed should SMPs keep up with the SMEs' Internet technologies usage.

For auditors, this study highlights the importance of perceived benefits in influencing the usage of entry-level Internet technologies. Limited users should familiarise themselves with these Internet applications. Gradually, the advantages of these Internet tools over traditional methods will become apparent to them. Additionally, staff should be exposed to and encouraged to develop skills and knowledge in using these Internet technologies because lack of time and internal IT expertise are among the key inhibitors to the adoption of these technologies. In short, top management should realise the benefits of using these Internet applications and provide the necessary incentives to promote their usage in the firm.

LIMITATIONS

The key limitations of this study are as follows: first, the study focused on a limited geographical area (the northern region of Malaysia), and the results may not be generalisable to other regions in Malaysia; second, the current findings may not be generalisable to other developed countries where the existing Internet knowledge is much more refined; third, given the desire for in-depth insights, this study was limited to 14 audit firms, which necessitates that future studies look at this issue with a larger sample and a broader geographical area. However, we believe that our Internet technologies adoption model can form the basis of larger scale studies for further improvement.

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