# Learning and knowledge transfer performance among public sector accountants: an empirical survey

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**Abstract** This research investigates the relationship between learning-related factors and knowledge transfer performance among accountants in a large public sector accounting organization in Malaysia, an area that is relatively underresearched. The Accountant-General's Department under the Ministry of Finance in Malaysia is selected for three reasons: (1) it is known as the knowledge nexus of public sector accounting knowledge and practices; (2) it has a large pool of professional intellects, that is, accountants; and (3) it is in the process of implementing knowledge management (KM). A survey questionnaire was designed to collect data from the accountants. The outcomes from factor analysis and multiple regression analysis provide some empirical support to the proposed relationship. The findings contribute to both research and practice from the perspective of future KM implementation strategy in a public sector accounting organization. The findings are discussed and recommendations are provided before concluding the paper.

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# Introduction

Accountants are professional intellects who are recognized as among the primary sources of knowledge and intelligence for most organizations (Chong et al, 2011b; Salleh et al, 2011). Regardless of whether they are in public or commercial accounting firms, accountants are largely skilled knowledge workers for their jobs rely on information as they provide accurate and timely reporting of financial results to different stakeholders by complying with regulatory requirements (Awad & Ghaziri, 2004; Whitmore & Albers, 2006). At the same time, they glean unique insights from new data and improved accounting models, which supports continuous learning (Wright, 2005). All these provide an ideal platform for knowledge management (KM) implementation in terms of leveraging on the experiences, ideas, and expertise possessed by these professional intellects (Nonaka & Takeuchi, 1995; Quinn et al, 1996; Davenport et al, 1998; Gupta et al, 2000; Bennet & Bennet, 2003). Notwithstanding this, there appears to be a scarcity of research concerning KM implementation in the accounting field, particularly in the public accounting organizations.

This study considers accountants attached to a large public sector organization in Malaysia. The Accountant-General's Department (AGD)

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under the Ministry of Finance Malaysia was targeted because the department is known for its expertise in government accounting and, in fact, as a major knowledge provider of accounting services. It has a large pool of accountants performing various accounting functions in order to provide quality and timely accounting information and services to all the ministries and agencies under the Federal Government of Malaysia. More importantly, the AGD is in the process of implementing KM, as the organization realizes the importance of leveraging the highly tacit experiences, ideas, and expertise possessed by its professional intellects. Such a move will enable the effective flow of tacit and explicit knowledge for performance improvement in terms of the accounting process, reporting structure, and decision-making process. Subsequently, the values of the AGD's knowledge assets are enriched and organizational learning is enabled. Among the AGD's plans that have been put in place to implement KM on an organization-wide basis include leadership focus on the information and communications technology (ICT) development, and human resources requirements and management. Numerous human resource programmes such as online mentormentee programme, on-the-job training, job rotation and the like have also been introduced. However, the effectiveness of these efforts needs to be examined before conclusions are drawn.

This research paper is considered important for the following three reasons. First, the absence of a consensus of what constitutes KM is the central issue of KM implementation. Although the number of publications dealing with KM is growing at an unprecedented rate since 25 years ago when Karl Wiig coined the term, the field is yet to mature. Researchers are still struggling to arrive at a consensus on the definition of KM due to its multidisciplinary nature (Gupta *et al*, 2000; Yahya & Goh, 2002; Chong & Choi, 2005; Edwards *et al*, 2005). As such, a comprehensive model, which organizations can use as a guide to embark on KM initiatives, particularly on organizational readiness towards KM (Chong & Chong, 2009) as in the case of the AGD, is lacking.

Second, it is evident from the literature that many KM studies have been conducted in the private sector such as small and medium enterprises (Salojarvi et al, 2005; Edvardsson, 2009; Werr et al, 2009; Bocquet & Mothe, 2010; Chong et al, 2011a), transportation industry (Cheung et al, 2005); electronic manufacturing industry (Huang et al, 2010), project-based businesses (Ajmal et al, 2010), pharmaceutical and healthcare industry (Azan & Sutter, 2010; Magnier-Watanabe et al, 2011), oil industry (Scarso et al, 2009), higher education institutions (Batra, 2009; Blackman & Kennedy, 2009; Sharimllah Devi et al, 2007, 2008), information technology (IT) companies (Chong, 2006; Goldoni & Oliveira, 2010; Jensen, 2010), life insurance industry (Huang et al, 2011), telecommunications companies (Chong & Chong, 2009; Chong et al, 2009), and consulting firms (Ambos & Schlegelmilch, 2009; Hanisch et al, 2009) to cite a few. While there are a considerable number of KM studies in the public sector (Liebowitz, 2003; Syed-Ikhsan & Rowland, 2004; Syed-Ikhsan, 2006; Gorry, 2008; Dixon *et al*, 2009; Nordin *et al*, 2009; Bennet *et al*, 2010; Ortiz-Fournier *et al*, 2010), so far only three publications are found to focus on the public accounting sector (Salleh, 2008; Chong *et al*, 2011b, Salleh *et al*, 2011). It is apparent that KM in public accounting organizations is still underresearched.

Third, notwithstanding the absence of a comprehensive conceptual model that guides KM implementation, the need for such a study is justified by the fact that implementing KM in public sector organizations can be a challenging undertaking compared with introducing such initiatives in the private sector. A number of differences between the sectors have been highlighted, such as culture (Parker & Bradley, 2000), constraints (Mintzberg, 1993), autonomy, goals and objectives (Day & Klein, 1987), and financial vs political considerations (Perry & Rainey, 1988). Magnier-Watanabe et al (2011) opined that KM practices need to be tailored to organizational idiosyncrasies of each local office. Since a study of such nature is limited in the Malaysian context, all the issues highlighted offer a fertile ground for the current research to be conducted.

The objective of this study is to address some of the research gaps by specifically investigating the relationship between the learning-related factors and knowledge transfer performance among the public sector accountants at the AGD. For this purpose, KM is defined as a process of making use of public sector accountants' collective expertise whether on paper, in documents, in databases (explicit knowledge), or in their heads (tacit knowledge) with the support of six learning-related factors in order to leverage on the professional intellects' expertise and to improve upon the value of embedded knowledge assets.

In other words, this study attempts to identify the significant learning-related factors that could contribute to the effective transferring of accounting knowledge, particularly those resulting from the externalization (from tacit to explicit) process. The importance of knowledge transfer is amplified by the fact that its ultimate goal of knowledge sharing has been identified as the cornerstone of KM (Kharabsheh, 2007; Lam & Lambermont-Ford, 2010; Reychav & Weisberg, 2010). Specifically, it enables the public sector to support knowledge transfer across organizations and communities (Dixon et al, 2009). Further, the learning process of professional intellects such as accountants needs to be evaluated in order to know whether they have excelled against their peers (Quinn et al, 1996). This research effort of improving the value embedded in the AGD's knowledge assets is geared towards preparing the department for a full spectrum of KM implementation. Subsequently, a successful KM implementation can lead to improved overall performance of the AGD by means of a more effective service delivery (Bennet & Bennet, 2003).

The next section presents the literature review. As a result of such review, a research framework and a series of hypotheses are developed to be tested in this study. This is followed by a description of the methodology utilized and presentation of the results. The subsequent section discusses and provides implications of the results before the paper is concluded along with the limitations and suggestions for future research.

# Literature review

### Knowledge transfer performance

Awad & Ghaziri (2004) define knowledge transfer as the transmission of knowledge (experience, lessons learned, know-how) and the use of transmitted knowledge (transmission and absorption). The goal of knowledge transfer is to promote and facilitate knowledge sharing, collaboration, and learning. In achieving the goal, knowledge must be transferred in a format acceptable (including externalization) to the user before it can be shared. More importantly, it must be transferred from a reliable source whether through face-to-face or electronic knowledge base so that its quality can be ascertained and subsequently its usage is possible. Further, speed of acquiring and making use of knowledge transferred is as important as the quality of the knowledge itself (Syed-Ikhsan & Rowland, 2004; Taylor, 2004; Syed-Ikhsan, 2005, 2006; Salleh & Ahmad, 2006; Salleh et al, 2006). As such, both reliability and speed have been identified as the performance indicators for the knowledge transfer process.

### Learning-related factors

Learning is an integral part of KM principles. Learning in KM is described by Stankosky (2005) as the acquisition of knowledge or skill through study, experience or instruction, and social interactions. Accordingly, KM can enable employees to learn from each other and from prior experiences of former employees through the use of KM mechanisms. Some examples of KM mechanisms include on-the-job training, employee rotation across depart-

ments, learning opportunities (such as learning by observation, learning by doing, learning from failures, or sharing good practices); upgrading ICT know-how and skills; performance evaluation and incentives and information sourcing opportunities. Table 1 shows the myriad of relevant studies identified from the literature.

# Relationships between learning-related factors and knowledge transfer performance: research framework and hypotheses development

Figure 1 presents the research framework on the posited relationship between the learning-related factors and knowledge transfer performance. The learning-related factors are identified as the independent factors in this study, while the dependent variable consists of knowl-edge transfer performance, which is characterized by reliability and speed of such transfer. The hypothesized relationships are presented in the following sub-sections.

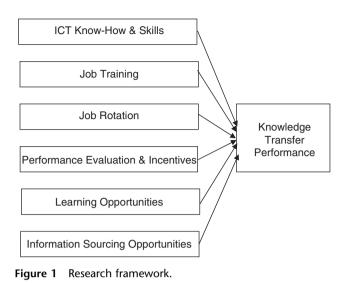
On the basis of the research framework, it is posited that the more trainings are provided for ICT skills upgrading, the more knowledgeable the person is in using various ICT tools and KM technologies. As such, more knowledge can be transferred and shared within and outside the organization (Syed-Ikhsan & Rowland, 2004; Salleh & Ahmad, 2006; Salleh *et al*, 2006). Specifically in the context of this study, if the accountants are trained to acquire or enhance their ICT knowhow and skills, the more likely they are to transfer and share knowledge by using the various ICT tools provided by the AGD. It is therefore hypothesized that:

**H1:** There is a positive relationship between ICT know-how and skills of public sector accountants and knowledge transfer performance.

Knowledge gained by employees through on-the-job training programmes will enable them to translate their knowledge into the organization's routines, competencies, job descriptions and business processes, plans, strategies, and cultures (Holsapple & Singh, 2003). This

Learning-related factors	Literature sources					
ICT know-how and skills	Syed-Ikhsan & Rowland (2004); Chong & Choi (2005); Syed-Ikhsan (2005, 2006); Salleh & Ahmad (2006); Salleh et al (2006).					
Job training	Yahya & Goh (2002); Holsapple & Singh (2003); Becerra-Fernandez <i>et al</i> (2004); Syed-Ikhsan & Rowland (2004); Chong & Choi (2005); Syed-Ikhsan (2005, 2006).					
Job rotation	Bogdanowicz & Bailey (2002); Becerra-Fernandez <i>et al</i> (2004); Syed-Ikhsan & Rowland (2004); Syed-Ikhsan (2005, 2006).					
Performance evaluation and incentives	Shapero (1985); Taylor <i>et al</i> (2001); Liebowitz & Chen (2003); Taylor (2004).					
Learning opportunities	Shapero (1985); Taylor et al (2001); Liebowitz & Chen (2003); Syed-Ikhsan & Rowland (2004); Taylor (2004).					
Information sourcing opportunities	Brown & Starkey (1994); Taylor <i>et al</i> (2001); Yahya & Goh (2002); Liebowitz & Chen (2003); Becerra-Fernandez <i>et al</i> (2004); Taylor (2004).					

Table 1 Literature review on study variables



will improve the accountants' knowledge and capabilities and subsequently enable effective transfer of knowledge between them. On the basis of this argument, it is anticipated that:

**H2:** There is a positive relationship between job training programmes received by the public sector accountants and knowledge transfer performance.

Employees bring to their new organizations/divisions their prior education, experiences, knowledge, and skills, which add value to the human capital of the new organizations/ divisions (Bogdanowicz & Bailey, 2002). Through job rotation programmes, relevant knowledge and experience acquired from a prior department may be transferred to the new department. Job rotation programmes therefore play an important role in the success of the knowledge transfer process among the accountants in the AGD, as it enhances the growth of employee learning/knowledge and the organizational learning/knowledge. This argument leads to the following hypothesis:

**H3:** There is a positive relationship between job rotation programmes among the public sector accountants and knowledge transfer performance.

Shapero (1985) opines that performance evaluation provides the opportunity for coaching, continuous learning, encouraging strong performance, and strengthening weak performance. As such, it is an important motivator to professional intellects as it provides incentives for the development of greater expertise and advancement within their profession (Taylor *et al*, 2001). On the other hand, failure to provide the accountants with performance evaluation and incentives can lead to their deficiencies in facilitating the transfer process and growth of the AGD's intellectual assets. The following hypothesis thus ensues:

**H4:** There is a positive relationship between performance evaluation and incentives provided to the public sector accountants and knowledge transfer performance.

Shapero (1985) introduces the concept of 'nutrient information', which refers to information that furnishes nourishment or promotes growth and repairs the natural wastage of an individual's knowledge base. Some of the examples of the professional intellects' needs for nutrient information include demonstrated interest in career planning, financial resources or incentives provided to attend conferences or opportunities to pursue lifelong learning. Unless the AGD can meet the accountants' needs for nutrient information, knowledge growth in terms of the effective transfer process that supports the KM principles will not be forthcoming. The following hypothesis is thus proposed:

**H5:** There is a positive relationship between learning opportunities made available to the public sector accountants and knowledge transfer performance.

The concept of 'information consciousness' to be created within an organization was introduced by Brown & Starkey (1994). This concept refers to the organization's attitude towards valuing information as a resource and the consequent processes of making organizational learning/knowledge available by facilitating knowledge transfer and sharing among the professional staff. The ease of obtaining information through regular access of technical and professional information is essential to the accountants' own renewal of nutrient information. The more information is made available and accessible by the accountants, the more effective the knowledge transfer process would be (Taylor, 2004). It is thereby expected that:

**H6:** There is a positive relationship between information sourcing opportunities made available to the public sector accountants and knowledge transfer performance.

The next section details the methodology used in this research.

### **Research methodology**

The scope of this research is limited to examining the learning-related factors and knowledge transfer performance among the public sector accountants employed by the AGD. Owing to their expertise, and significant roles in the public sector accounting organization, their responses to the variables under study can render a high level of credibility and can have long-term consequences for the future KM implementation success in the AGD (Chong *et al*, 2011b).

Data were collected through the use of a self-administered questionnaire. The questionnaire was designed and developed within the scope of the research framework shown in Figure 1, which depicts the effects of the learning-related factors of professional intellects in a public sector accounting organization on the knowledge transfer performance. Specifically, the items were derived from literature review, particularly from the previously tested and validated variables of Stankosky (2005); Taylor *et al* (2001); Taylor (2004) and Syed-Ikhsan & Rowland (2004) and the exploratory interviews with few AGD officials.

The questionnaire contains three sections. The first section is meant to solicit demographic information of the respondents. The questions include gender, age, tenure, position, and whether the AGD provides opportunity to the respondents to attend KM-related seminars and conferences to enhance their awareness and understanding of KM. In the second section, there are a total of 20 multiple items operationalized for the six independent variables, that is, ICT know-how and skills, job training, job rotation, performance evaluation and incentives, learning opportunities, and information sourcing opportunities. Section three consists of 9 items capturing the respondents' perception on knowledge transfer performance, specifically on speed (4 items) and reliability (5 items) of such transfer. A 7-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree is used for Sections 2 and 3. The research objective and definitions of knowledge and KM were provided in the introduction page. This is to ensure that the respondents have consistent understanding of the study objective and the various terminologies used in the survey.

Pre-testing and pilot testing of the questionnaire was carried out and some revisions were made prior to its distribution. The pre-testing included the exploratory interviews with the AGD officials, after which the pilot testing was conducted in order to check for appropriateness, readability, and comprehensiveness of the survey instrument (Rossi *et al*, 1983). As such, content validity of the questionnaire was established.

All the accountants employed by the AGD constitute the population of interest. In total, 365 questionnaires were mailed to the accountants and 203 (56%) returned the completed questionnaire. In order to ensure that all the responses are representative of the population, a nonresponse bias test was conducted using *t*-test for differences in the mean of the independent and dependent variables by comparing the survey responses between early replies (representative group for replies) and late replies (representative group for non-replies). The results confirmed that the respondents are indeed representatives of the sample population.

The female accountants make up the majority of respondents (57%). In total, they range in age from 24 to over 50 years, with those between the age cohorts of 24 to 37 years making up the largest number (60%). On an average, they have been with the AGD for 10 years. About 56% of the respondents surveyed are junior

accountants, followed by senior accountants (30%). The remainder is in the top management level. Only 35% of the respondents were given the opportunity to attend KM-related seminars and conferences.

## **Results and discussion**

In addition to content validity, the construct validity of the multi-item variables adopted in this study has also been confirmed using principal component analysis with varimax rotation. With a Kaiser-Meyer-Olkin value of 0.877 (more than 0.60) and large and significant Bartlett's test of sphericity (*P*-value < 0.05), the data were deemed appropriate for factor analysis. Table 2 shows that with eigenvalues greater than 1.00 and factor loadings of 0.40 and above given the sample size (Hair et al, 1998), the factor analysis extracted six factors, which explained 70.24% of the total variance. The attributes originally operationalized under information sourcing opportunity were removed due to loadings less than 0.40, thus leaving 27 items (18 items from the independent variables and 9 items from the dependent variable) to be retained for further analysis. The items for job training and learning opportunities were found to cluster together, and thus the factor was labelled as training and learning opportunities. Items measuring knowledge transfer performance were found to be clustered in terms of speed and reliability. As a result, H2 and H3 were combined, while H6 was dropped from further analysis. The initial hypotheses formulated were therefore restructured as follows:

- **H1:** There is a positive relationship between ICT know-how and skills of public sector accountants and knowledge transfer performance.
- **H2:** *There is a positive relationship between training and learning opportunities made available to the public sector accountants and knowledge transfer performance.*
- **H3:** There is a positive relationship between job rotation programmes among the public sector accountants and knowledge transfer performance.
- **H4:** There is a positive relationship between performance evaluation and incentives provided to the public sector accountants and knowledge transfer performance.

The factor analysis results reveal important confirmation to the theoretical findings and empirical evidences reported in the literature. It reinforced the importance of measuring knowledge transfer performance, judging from the fact that effective knowledge sharing process is not only a major goal of the transfer process, but also an immediate goal of any KM initiatives (Chong *et al*, 2011b). Accordingly, four significant learning-related factors have been extracted from the analysis. They are: (1) training and learning opportunities; (2) job rotation; (3) performance evaluation and incentives; and (4) ICT

# Table 2 Detailed results of factor analysis and reliability test

Multiple item questions of study variables	Factor						
	1	2	3	4	5	6	
F1: Training and learning opportunities							
F1_1: My organization provides opportunities for me to attend training externally in the fields related to my tasks	0.772						
F1_2: My organization provides opportunities for me to attend training internally in the fields related to my tasks	0.734						
F1_3: The training division of my organization has played an active role in human resource development and structured training courses	0.705						
F1_4: I am encouraged to be involved with internal and outside educational activities, for example, train the trainers, seminar facilitator, or consultant.	0.668						
F1_5: My organization provides opportunities for me to attend advanced ICT training internally/ externally to enhance my job performance	0.621						
F1_6: I am fully informed and fully understand how to access the information resources available in my office and throughout my organization	0.604						
F1_7: My organization has adequate budget to encourage staff for professional development programmes and lifelong education	0.593						
F1_8: I am encouraged to network with other accountants in the public and private sectors	0.574						
F2: Reliable transfer of explicit knowledge							
F2_1: Knowledge/information can be transferred to the respective person within the divisions/units without difficulties		0.848					
F2_2: Knowledge/information can be transferred to the respective person in other divisions/units without difficulties		0.814					
F2_3: Decisions can be made confidently using the available knowledge/information		0.720					
F2_4: Knowledge/information that is transferred is generally very up to date F2_5: Knowledge/information that is transferred is generally very reliable		0.706 0.665					
F3: Speed transfer of explicit knowledge							
F3_1: Knowledge/information is accessed very fast with other divisions/units			0.857				
F3_2: Knowledge/information is accessed very fast within the divisions/units			0.847 0.838				
F3_3: Knowledge/information is exchanged very fast within the divisions/units F3_4: Knowledge/information is exchanged very fast with other divisions/units			0.838				
F4: Job rotation							
F4_1: Job rotation is suitable in enhancing my ability to create, transfer, and share knowledge				0.944			
F4_2: Job rotation is suitable in training me to create, transfer, and share knowledge				0.927			
F4_3: Job rotation is suitable to enhance the transfer of my tacit and explicit knowledge				0.914			
F5: Performance evaluation and incentives F5_1: I am promoted and rewarded based on my ability to share my personal knowledge and					0.774		
experience with others							
F5_2: Knowledge and skill in ICT is used as an important criteria for my formal performance evaluation					0.707		
F5_3: My top management acknowledged good performance and helped me to understand my future career opportunities					0.622		
F5_4: On the basis of the formal performance evaluation by my superiors, I know what improvement are expected of me					0.607		
F6: ICT know-how and skills							
F6_1: I have adequate training internally on how to use computer and computerized accounting system						0.84	
F6_2: I have adequate training internally on how to use ICT tools in my organization F6_3: The technology and system know-how in my organization is easily transferable						0.84 0.64	
Eigenvalues	10.673	3.036	2.530	1.604		1.04	
Percentage of variance explained Cumulative percentage of variance explained		10.468	8.725	5.531	5.111	3.60	
	20.003	4/.Z/Z	55.996	01.326	00.039	70.240	



know-how and skills. As a result, the hypotheses generated earlier were restructured to accommodate the factor analysis results.

Table 2 also shows the internal consistency, that is, reliability assessments of the survey data as measured by Cronbach's coefficient  $\alpha$ . Since the  $\alpha$  coefficients for all the constructs are above 0.70 (Pallant, 2001; Sekaran & Bougie, 2010), it can thus be concluded that the responses produce a reliable and valid scale for further statistical analysis.

Table 3 presents the multiple regression results between the four learning-related factors and knowledge transfer performance. In view that the Variance Inflation Factor values are lower than 10 and that the tolerance values are more than 0.20, they are within the cut-off points suggested by researchers (Kleinbaum *et al*, 1988; Chatterjee *et al*, 2000). It can thus be concluded that the issue of multicollinearity does not exist, and therefore the variables can be used for regression analysis.

For the purpose of this analysis, both the knowledge transfer performance factors (speed and reliability) were combined as one dependent variable. The results in Table 3 show that all the learning factors, except for job rotation, were found to be significantly related with knowledge transfer performance, with *F*-value and  $R^2$ -value of 23.002 and 31.7%, respectively. The training and learning opportunities factor scored the highest  $\beta$ -value, followed by performance evaluation and incentives, and ICT know-how and skills factors at 1, 5, and 10% significance levels, respectively. As such, the restructured H1, H2, and H4 are accepted.

Corroborating earlier studies (Shapero, 1985; Taylor *et al*, 2001; Yahya & Goh, 2002; Holsapple & Singh, 2003; Liebowitz & Chen, 2003; Becerra-Fernandez *et al*, 2004; Syed-Ikhsan & Rowland, 2004; Taylor, 2004; Chong & Choi, 2005; Syed-Ikhsan, 2005, 2006), training and learning opportunities were significantly associated with

knowledge transfer performance. As a matter of fact, this factor was found to score the highest  $\beta$ -value. This is not difficult to understand as the accountants have to consistently attend seminars and conferences as mandated by the government and professional associations in order to keep up with the latest accounting developments and practices. In addition, some of them are also required to share their expertise through the public seminars organized by the AGD and to some extent by the professional associations. Either way, the knowledge gained enables the accountants to transfer the right and timely sources of knowledge internally or externally either face to face or through electronic means currently available within the AGD such as the Internet, intranet, computerized accounting system, online forum, video conference, and an interactive database. There also exists an online mentor-mentee system that is an electronic means of knowledge transfer within the AGD, which encourages the accountants to transfer and share knowledge among themselves. However, it can be seen that these opportunities are rather limited to their practices, since only 35% of the respondents reported that they were given the opportunity to attend KM-related seminars and conferences. This is not difficult to comprehend as the AGD has yet to implement KM, and therefore KM-related training is not in the training calendar (Chong et al, 2011b). The findings suggest that it is timely to provide KM-related training to the accountants specifically for knowledge transfer purpose given the availability of the ICT infrastructure in the AGD.

Performance evaluation and incentives were found to score the second highest  $\beta$ -value. Consistent with the literature (Shapero, 1985; Taylor *et al*, 2001; Liebowitz & Chen, 2003; Taylor, 2004), the findings suggest that performance evaluation and incentive is a critical factor affecting knowledge transfer performance of the accountants. This is not unexpected as accountants are

				Coefficier	nts				
Model 1 Predictors		Unstandardized coefficients		Standardized coefficients	t	Significance	Collinearity statistics		
		В	Standard error	β			Tolerance	VIF	
(Constant) Learning-related factors			1.752	0.426		4.108	0.000		
• Training and learning opportunities			0.291	0.084	0.315***	3.476	0.001	0.419	2.384
Job rotation			0.049	0.064	0.048	0.772	0.441	0.898	1.113
• Performance evaluation and incentives			0.166	0.072	0.194**	2.316	0.022	0.492	2.032
ICT skills and know-how			0.099	0.059	0.118*	1.667	0.097	0.687	1.456
		Мо	del summa	nry				ANOVA	
Model	R	<i>R</i> <sup>2</sup>	Adjusted R <sup>2</sup>		Standard error of estimate		F	Significanc	
	0.563	0.317	C	.303	0.76843		23.002	0.000	

Table 3 Results of multiple regression analysis

\*significant at <10% level; \*\*significant at <5% level; \*\*\*significant at <1% level. Dependent variable: Transfer performance of explicit knowledge. knowledge workers (Quinn et al, 1996; Awad & Ghaziri, 2004; Salleh et al, 2011), and thus their performance depends on their abilities to apply and transfer knowledge in terms of meeting the tight deadlines, providing quality and timely reporting of financial results, and to comply with regulatory requirements (Whitmore & Albers, 2006). This becomes even more critical as the accountants are responsible for providing accounting services to all the ministries and agencies under the Federal Government of Malaysia. As such, they are constantly evaluated for their expertise and performance in meeting the requirements of the government through the use of performance appraisals. Since many of the accountants must work in teams, speed and reliability of knowledge transfer become an important issue as they strive to fulfill their responsibilities. However, it can be observed from the preliminary interviews with the accountants that priority is given to the performance on the job rather than on the basis of transferring personal knowledge and experience. This is an area that warrants attention from the part of the AGD.

The third and last significant factor was ICT know-how and skills. It is not surprising that this factor is significantly associated with knowledge transfer performance, as many of the accountants are using computerized accounting information systems today in the course of performing their jobs. As a matter of fact, the AGD's management has stressed on the importance of using ICT tools in carrying out the accountants' duties as a means of managing and leveraging on the AGD's knowledge systematically and actively. The accountants reported in the preliminary interviews that the AGD has already developed some key KM features in place such as investing in ICT infrastructure and hiring IT specialists to manage and provide training to users. However, as reported by Chong et al (2011b), the accountants see that further ICT investments are necessary in order to make the KM initiatives work. This is because they perceive that the investment is directed at improving the accountants' performance on the job rather than for specific KM purpose.

Job rotation is the only factor that is not significantly associated with knowledge transfer performance. This is contrary to the findings documented in the literature (Bogdanowicz & Bailey, 2002; Becerra-Fernandez *et al*, 2004; Syed-Ikhsan & Rowland, 2004; Syed-Ikhsan, 2005, 2006) where job rotation programme is expected to play an important role in the knowledge transfer process as the accountants gained knowledge of working in other divisions. One possible explanation to this non-significant learning factor is that the accountants perceive that the jobs performed in different divisions are different, and therefore job rotation does not help in transferring and sharing of useful working knowledge gained in their different engagements of accounting tasks.

In view of the findings, it is timely that the AGD re-examines and improves upon their current practices as they move towards implementing KM. As part of the

AGD's KM initiatives, the knowledge transfer process ought to be examined in detail. This should be viewed as an important step in the overall KM strategy. The accountants must be made aware of the knowledge transfer process and the overall KM plan through department-wide training. It is also timely that the accountants are sent for KM-related seminars and conferences in order to enhance their understanding of how KM works in the accounting domain. In this instance, leadership support and a culture of knowledge sharing and transfer are of paramount importance. As Gooijer (2000) puts it, since KM is a radical innovation that changes the operations of an organization, it is regarded as an intervention to an organization's culture. This is more so in public organizations that are characterized by hierarchical structure, political autonomy and constraints, and with political considerations overriding financial considerations in determining the goals and objectives of such organizations. As such, a knowledgefriendly culture built on trust and confidence must be nurtured in order to encourage voluntary rather than mandatory participation in the knowledge transfer process particularly among the accountants. In these instances, the leaders play an important role in eliminating the constraints of knowledge transfer. This is viewed as an important step because such constraints lead to inefficiency, ineffectiveness, and powerlessness, which slow down the accountants' response and the lack of incentives to innovate (Chong et al, 2009). More importantly, it leads to negative perception and/or attitudes towards KM success.

With training and learning opportunities significantly related with knowledge transfer performance, the accountants must be required to attend at least one KM-related seminar or conference per year in addition to the regular accounting workshops. Sufficient budget must be made available for this purpose. The online mentor-mentee programme has to be restructured with KM principles in mind. Besides training, new updates on the AGD's KM initiatives have to be made available on a departmental-wide basis (Yahya & Goh, 2002) based on the premises that the value propositions of KM have to be communicated to everyone within the AGD. As a government accounting organization, the AGD can influence the professional associations on the importance of blending KM with accounting practices, as well as the steps it is taking to implement KM; this will create the avenue for its practice to be adopted industry-wide. This is important as the accountants are dealing with others within and outside the AGD in carrying out their tasks and responsibilities. Only then can knowledge transfer occur in a more meaningful way.

Performance evaluation and incentives are another imperative factor to consider. The accountants are professional intellects, and therefore they need performance evaluation and incentives to maintain their status as experts (Shapero, 1985; Taylor *et al*, 2001). As a matter

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of fact, frequent performance appraisal and a culture of feedback by superiors is an effective leveraging of professional intellects (Quinn *et al*, 1996). On the basis of these premises, the AGD must ensure that the KM measures and incentives are embedded in the overall performance evaluation model and not just a marginal add-on to the core measures (Gooijer, 2000), in order to keep track of how the accountants are supporting the KM principles and activities through the learning-related factors and accounting knowledge transfer process. One strategy is to build promotional and reward systems based on the ability of the accountants to transfer and share personal experiences and innovative ideas with others (Liebowitz & Chen, 2003).

Equally important in this study is the ICT know-how and skills required to successfully execute KM activities. The ICT competencies of existing staff need to be determined. This is in addition to re-examining the existing knowledge repository in terms of its ability to support KM principles and activities. The existing knowledge repository must consider other important KM features such as directory of expertise, electronic mail, and discussion forums than merely concentrating on the storage of accounting knowledge. The accountants need to be trained on how best to utilize the existing ICT tools and system. More importantly, the technology and system know-how must be easily transferable so as to support the professional intellects who are involved in the knowledge transfer process, and that they are expandable in order to capture all the KM processes that the AGD plans to implement in the future.

## Conclusion

This study has achieved its objective of investigating the relationship between the learning-related factors and knowledge transfer performance among the accountants in the AGD using a reliable and validated instrument. It makes important contributions to the KM and accounting literatures in terms of confirming the relationships between the variables of interest in the public sector accounting, which has received little research attention. With the fairly good representation from the public sector accountants who participated in the survey, the findings can serve as an important guide to the AGD when the department plans and implements its KM initiatives.

Since the AGD's main task is heavily related to accounting process and technology to improve its data integrity and organizational performance, the outcomes suggest that the AGD has to give more emphasis on the significant learning factors of its accountants to influence the knowledge transfer process. This is helpful to the AGD in drawing up its future KM implementation strategy for its continued organizational learning and performance improvement.

However, the findings must be interpreted with care. This research is conducted only on a single public sector accounting organization from the perspective of one group of professional intellects, that is, accountants, raising the question on the applicability of the results to other professional intellects across different sectors. Readers should be aware of the organizational and cultural differences when making interpretations of the results. In so doing, future studies with a larger and balanced sample size across different public sector organizations may prove to be useful to determine whether the findings are consistent or otherwise. Similarly, a retest of the survey instrument on the private enterprises may yield interesting insights as a means to control organizational and national cultural differences.

Further, an extension of the study using qualitative method is a possibility in order to validate the results and recommendations made so as to ascertain whether they will indeed work in the AGD, particularly when there exists potential endogeneity problems, which could be more effectively addressed through a qualitative method. It is also worth highlighting that this research intends to provide a snapshot of the learning-related factors and their relationships with the knowledge transfer performance. It does not purport to look at the cyclical model of KM processes, a promising area in which future research should address. Since the learning-related factors explained only 32% of the variance in knowledge transfer performance, other factors need to be identified and investigated so that a more holistic set of factors can be determined in order to improve upon the model. As KM takes time to be implemented (Civi, 2000; Dyer, 2000), a longitudinal study is more appropriate to capture the details as compared with the data collected from the survey research.

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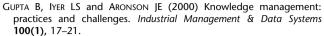
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