

KNOWLEDGE SHARING INITIATIVES IN LOCAL AUTHORITIES IN MALAYSIA

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List of Abbreviations

DLP	District local plan
CoP	Communities of practices
GIS	Geographical information system
IT	Information technology
KM	Knowledge management
KS	Knowledge sharing
KSI	Knowledge sharing initiatives
LAM	Local authorities in Malaysia
MHLG	Ministry of Housing and Local Authority
NPP	National physical plan
OSC	One-stop centre
PBT	Pihak berkuasa tempatan
HDP	Head of Planning Department
HDO	Head of OSC
PO	Planning Officer
HDPC1	Head of Department of Planning
HDOD1	Head of Department of OSC
POC1	Planning Officer
HDPM1	Head of Department of Planning
HDPM2	Head of Department of Planning
HDOM1	Head of Department of OSC
HDOM2	Head of Department of OSC
HDPM3	Head of Department of Planning
HDPM4	Head of Department of Planning
HDPM5	Head of Department of Planning
HDOM3	Head of Department of OSC
POM1	Planning Officer
HDPD1	Head of Department of Planning
HDOD1	Head of Department of OSC
HDOD2	Head of Department of OSC
HDOD3	Head of Department of OSC
HDOD4	Head of Department of OSC
HDOD5	Head of Department of OSC

HDOD6	Head of Department of OSC
HDOD7	Head of Department of OSC

Abstract

Knowledge Sharing Initiatives in Local Authorities in Malaysia

This research investigates the knowledge sharing initiatives in local authorities in Malaysia. It focuses on to what extent knowledge sharing initiatives impact on the planning permission process and how best this impact can be conceptually modelled and presented for the purpose of improving the process. The aim of this research is to establish the significance of knowledge sharing initiatives in the planning permission process and to develop guidance in this regard for local authorities in Malaysia with a view to improving the process. The needs of this research arise due to the importance and the rapid flow of information, which is transforming business processes and procedures, and resulting in the rise of a knowledge-based economy. It also responds to the government's intention to achieve "Developed Nation" status in 2020.

Knowledge sharing initiatives are organisational approaches to manage knowledge in an organisation. In order to exploit effective knowledge sharing; the organisation has to establish the significance of knowledge sharing initiatives approaches. Nevertheless, strong demand and expectation from citizens for efficient service delivery, coupled with global challenges in the knowledge based economy have fuelled the need for government agencies to consider the effectiveness of knowledge sharing as a strategy to improve service delivery. Effective knowledge sharing initiatives have the potential to benefit local authorities in view of their role.

This research, one of the most comprehensive ever undertaken in this area, comprises interviews and distributions of questionnaires to local authorities in Malaysia. The list of local authorities was acquired from the Ministry of Housing and Local Government. The data were obtained from embedded questionnaire surveys, online survey and interviews; 103 (34.56%) data were obtained through the survey method, and 20 interviewees participated.

The research findings of this study have several implications for research into the role of knowledge sharing initiatives concerning the planning permission process. First, the nature of knowledge sharing tools and techniques in local authorities is dependent on the variety of

tasks and complexity of the sub-process of the planning permission process. Second, the effectiveness, the use and exploitation of knowledge sharing tools (technologies) and techniques are dependent on the sub-process of the planning permission process and type of local authority and the resources available.

Third, the results show that there is a difference in the impact of organisational structure, culture and motivational construct in the effective sharing of knowledge in local authorities of various sizes.

Developing a model and guidance for improving the planning permission process through knowledge sharing initiatives have enable management to guide towards establishing the significance of knowledge sharing initiatives in the process of planning permission. The guidance in knowledge sharing initiatives include the following steps: identify knowledge, gathering and finding knowledge, organising, sharing, applying and evaluating. It also gives clear responsibility to various levels of team members including top management, managerial and supporting staff in implementing knowledge sharing initiatives in the planning permission process.

There is extensive scope for more empirical studies to explore and document the issue of knowledge sharing in local authorities in Malaysia. An in-depth investigation into regional culture and its impact on knowledge sharing is needed and would lead to results of practical utility. A study on other local authorities that adopt a similar research methodology to the current study would contribute to the body of knowledge in this area.

CHAPTER 1. INTRODUCTION

1.1 Introduction

This chapter will present the rationale for this research. It will also explain why research into knowledge management and sharing is being conducted specifically in the context of the local authorities in Malaysia (LAM). The problem statement presents the key prompts for the research: the rise in creating a knowledge society, the need to improve service delivery in the local authorities and the development of human capital, especially in government services. This chapter provides an overview of the importance of knowledge management within the Malaysian government and the importance of the development of a knowledge society. The aim of this chapter is to provide clear research objectives, to define the research question and also to identify the research framework of the study.

1.2 Statement of the Problem

In recent years, discussing the concept of knowledge in organisations has become increasingly popular in the literature and is being recognised and managed as the most important resource for economic success, particularly the knowledge that exists within organisations. British Petroleum (BP), Chevron, Shell, Hewlett Packard, Buckman Labs and Xerox are examples of success stories of companies that have implemented knowledge management (KM) in their business strategies management (Skandia 1994 cited in Anumba *et al.*, 2005). American Management Systems (AMS), PricewaterhouseCoopers (PwC), National Semiconductor Corporation have integrated sharing knowledge into their business strategy and brand identity whilst Ford Motor Company uses the approach of sharing knowledge obliquely. Lotus Development Corporation shares knowledge as part of how the company solves specific business problems (McDermott and Odell, 2001). These are worldwide examples that show the knowledge as resources for economic success (Mohd Nor, 2013).

Knowledge that resides in employees and in organisational routine (Polanyi, 1966) tacit and explicit knowledge (Nonaka and Takeuchi, 1995) are rapidly becoming important to

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organisations and are considered as very important resources (Alvesson, 1993) for sustaining organisational capabilities (Davenport and Prusak, 1998). Therefore, knowledge is seen to be central to product and process innovation and improvements within organisations, and, at the same time, it is important to develop a knowledge strategy in order to enhance organisational capabilities. Hansen *et al.* (1999) suggest that there are basically two strategies for managing knowledge. These strategies were termed 'codification' and 'personalisation'. The agenda of the codification strategy is ensuring that knowledge is carefully codified and stored in databases where it can be accessed and used readily by anyone in the organisation. However the personalisation strategy ensures that knowledge is closely tied to the person who developed it and is shared mainly through direct person-to-person contacts.

The idea of the importance of knowledge management was first raised in Malaysia in 1991 by the former Prime Minister of Malaysia, the Honourable Tun Dr Mahathir Mohamed in order to highlight the need for economic transformation into a knowledge-based economy (Mohamed, 1991). The 'Vision 2020' has to be updated. Where as the main gist of this vision was to develop Malaysia as a fully developed country, not only developed in the economic sense, it also fully developed along all dimensions: economically, politically, socially, spiritually, psychologically and culturally. Malaysia must be fully developed in terms of national unity and social cohesion, in terms of economy, in terms of social justice, political stability, and system of government, quality of life, social and spiritual values, national pride and confidence. Malaysia must make the move towards a knowledge-based society and make the economy its primary target. In today's environment, the foundation for economic growth and development is becoming increasingly dependent on intellectual capacity and its ability to harness technology to achieve its development goals and service delivery. This is in line with Drucker (1969) who stated that knowledge has 'become the central capital, the cost centre and the crucial resources of the economy'. Knowledge production, knowledge acquisition, its utilisation and management, and correspondingly, innovation, are all necessary to gain as competitive edge.

Consequently, there has been extensive discussion and research on issues pertaining to the knowledge-based economy, the development of information and infrastructure, institutions, human capabilities, practices and even the culture that is needed to support and sustain it. The development of human capital is a top priority for the Malaysian government (Hashim, 2001). In order to realise this governmental vision, the Malaysian government requires a knowledgeable and skilled workforce to successfully meet the challenges ahead and to

improve the process of delivery systems. Employees are the greatest asset in an organisation and must be given the priority before any new management put in place. Numerous authors have identified the dependence of people or employees on knowledge in an organisation (Fong, 2005; Kamara *et al.*, 2005). Knowledge has been described as 'a state or fact of knowing with knowing being a condition of 'understanding gained through experience or study; the sum or range of what has been perceived, discovered, or learned" (Schubert *et al.* 1998). One standpoint on knowledge as a state of mind focuses on enabling individuals to expand their personal knowledge and apply it to the organisation's needs (Alavi and Leidner, 2001)

The ability to acquire, explore, create and use knowledge in an organisation has been deemed to enhance organisational performance and efficiency in the working process (Nonaka and Takeuchi, 1995; Egbu, 1999). Local authorities are mainly known as knowledge intensive organisations (this will be discussed further in section 2.2.3), as these organisations often have policy making and servicing, developing and providing knowledge as their main activities (Luen and Al-Hawamdeh, 2001). Thus, some local authority departments have knowledge as their core product: providing knowledge and services to local residents, or they employ many knowledge workers that are experts in developing and providing knowledge. This is the characteristics of most public sector organisations (Raja Kassim, 2008). In general, therefore, it seems that an organisation's performance and effective delivery of service depends upon the knowledge and expertise possessed by its employees. It follows that for leaders and organisations, the process by which knowledge is created, acquired and utilised must be effectively managed.

Many academics and even researchers in the field of management have tried to draw attention in this issue. Research into the causes of these problems has shifted current attention to the sharing of knowledge concerning knowledge management. It is interesting to note that organisations cannot create knowledge without individuals, and without an individual's knowledge cannot being shared with other individuals or groups (Nonaka and Takeuchi, 1995).

The importance of knowledge sharing has been highlighted by many researchers, such as research into the critical factors that affect an organisational's success (Davenport and Prusak, 1998), research into where knowledge attains its economic and competitive value (Hendriks, 1999) and research looking at the barriers that affect the effective implementation of knowledge management practices (Agrawal *et al.*, 2008). In practice, lack of knowledge

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sharing has proved to be a major barrier to the effective management of knowledge in organisations (Davenport and Prusak, 1998). Knowledge is now being seen as the most important strategic resources and as a source of power in an organisation (French and Raven, 1959), and the management of this knowledge is considered critical to organisational success. There are many reasons why employees are reluctant to share their knowledge or expertise: fear of losing superiority (Szulanski, 1996), a desire to focus on those tasks that are more beneficial to them (Michailova and Husted, 2003), lack of trust (Kane *et al.*, 2005) and a lack of incentive for knowledge sharing (Soo *et al.*, 2000).

How to stimulate individuals in organisations to create, share or apply knowledge is an issue (Davenport and Prusak, 1998). Another issue is how to integrate and manage organisational knowledge so that it results in successful organisational performance. The literature contains numerous definitions of knowledge sharing, such as: a process through a unit that is affected by the experience of others (Argote and Ingram, 2000), the activity of transferring or disseminating knowledge from one person or group to another (Lee, 2001), and as a process of exchanging knowledge and together creating a new knowledge (Hooff *et al.*, 2003). In the context of LAM, knowledge sharing is a process in which individuals, groups or departments exchange or share their knowledge (tacit or explicit) and together create new knowledge, or share task-relevant ideas, information and suggestions with each other throughout the whole department or organisation. According to the knowledge sharing, the researcher argues that since individuals or employees in an organisation are the prime movers, and, given the importance of knowledge sharing in organisations, it would be interesting to identify knowledge sharing initiatives that enhance knowledge sharing and improve service delivery within LAM.

The Malaysian government started its engagement by acknowledging the importance of knowledge management in 1991 (Yassin, 2008). It was a beginning point, acknowledging the importance of knowledge management in streamlining operations, especially in the context of service delivery. Since then, various government agendas and policies have been implemented to realise this vision. The launching of Malaysia's Knowledge-Based Economy Master Plan occurred in September 2002. The National Information Technology Agenda and the development of the Multimedia Super Corridor were introduced in 1996 as well as the 8th Malaysia Plan Period (2001-2005). These are some of the government policies concerned with creating a knowledge society, especially in the context of the Malaysian government service. For example in the 8th Malaysia Plan Period, concerted efforts were undertaken to

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enhance the delivery of public services to customers and stakeholders. The Government identified the enhancement of the public service delivery systems as a key strategic thrust in the economic stimulus package designed to mitigate the effects of the economic downturn faced by the country (Government of Malaysia, 2001). The scope of efforts to enhance the public sector delivery system encompassed reduction of bureaucratic red tape, service of local authorities as well as improvements in counter services and etc. This situation is parallel with Ismail and M. Yusoff (2009) affirmed in their research within government agencies in Putrajaya, Malaysia founded that there is a significant relationship between knowledge sharing and public sector service delivery.

Malaysia's government agencies are striving to increase knowledge sharing amongst their employees by creating or developing knowledge repositories where they can contribute their expertise electronically or non-electronically to the organisation in a way that can be accessed by other employees. Technology is a key enabler in implementing a successful knowledge sharing programme and strategy (Syed Ikhsan and Rowland, 2004). In addition, Bhatt (2001) stated that information technology can provide an edge in harvesting knowledge. Kankanhalli *et al.* (2003) added that the main role of information technology in this area is to help people locate each other, to communicate, facilitate and to achieve complex knowledge transfers and economic reuse of knowledge. Local authorities are adopting and implementing technologies in their daily operations as part of their organisational strategy. Additionally, information technology has made it easier to acquire, store or disseminate knowledge intra organisations and inter-organisations. The use of planning approval systems and geographical information systems has added value and has provided benefits and improvements in the government services (Hashim *et al.*, 2006). It improves the record keeping system and at the same time speeds up the execution of their work, especially in the planning permission process. Carneiro (2001) identified that most people in an organisation do not know how to manage and effectively use technology resources or systems. Kululanga and McCaffer (2001) stated that an organisation should support knowledge management processes by providing appropriate technology for their employees. In addition, if technologies are not managed properly in organisations, they may cause information overload.

At first glance it appears that the easiest way to improve knowledge sharing is to alter the organisational culture (McDermott and O'Dell, 2011). This is possible, of course, but it is necessary to realise that changing organisational culture is not simple or quickly undertaken. For example, Malaysian cultural diversity includes that of ethnicity, religion and educational

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background, all of which have an impact on the knowledge sharing activities in an organisation. Malays are prominent in the context of the Malaysian government sector (Asma and Pederson, 2003). Different backgrounds of education are also characterised by a trend over the past twenty years. In recent years a significant number of students have pursued higher education overseas and it has been noted that such graduates in Malaysian organisations work differently compare to their colleagues and tend to rely heavily on management and behavioural theories imported from the west (Narayanan *et al.*, 2003). The impact of this is that Malaysians who have been exposed to an overseas education may express more liberal values and demonstrate a Western-Educated outlook compared to their local counterparts (Asma and Pederson, 2003). Therefore, it is important to be able to select and adopt the most appropriate concepts that would suit Malaysian organisations or work culture.

One of the major concerns is the issue as to whether or not knowledge workers are motivated to share their knowledge with others. A knowledge worker's motivation plays a critical role in enabling the sharing of knowledge in an organisation (Tuomi, 2001). Another widely used motivational theory is two-factor theory (Herzberg's, 1968) as cited in Ruthankoon and Ugunlana (2003). Motivation factors in an organisation include factors, such as achievement, responsibility, recognition, promotion opportunities and the challenge of work. In the context of the Malaysian government sector, most Malaysians are interested in building and maintaining good relationships with those with whom they work. They are often contented at work if they have the opportunity to show and receive appropriate recognition and respect from their superiors, peers and subordinates. In fact, motivations is a power that strengthen behaviour, gives affects behaviour and activate the enthusiasm to continue (Bartol and Martin, 1998); Manzoor, 2011).

However, issues regarding loss of power, reluctance to share information, fear of revelation and attitudes towards knowledge sharing, many of which cannot be easily identified, can prevent workers from sharing knowledge. Therefore, managers or leaders must acknowledge both the significance of attitudes and their impact on the actions of their workers, and, at the same time, employees must be sufficiently motivated to share knowledge.

In the context of local authorities, the Malaysian government has continued to enhance the quality and efficiency of urban services by restructuring services undertaken by local authorities. These efforts have been taken to provide seamless and efficient service by reducing bureaucratic red tape. Work processes and procedures will be re-engineered and

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simplified while more decision centres will be established to enable effective and speedy decision-making. Under the programme of 'New Strategies towards Stimulating the Nation's Economic Growth' the Malaysian government has taken action to improve the process of development planning in local authorities under 'Langkah70' (Government of Malaysia, 2001). To carry out this function, the local authority has to prepare a two-tier development plan (structure plan and local plan) for the purpose of organising, controlling and planning the development as well as for the use of land and building in their area (Yaakup *et al.*, 1994).

Development control is a tool being used by local authorities to control development and to satisfy all parties by maintaining comfort, convenience and efficiency as well as preserving their built and natural environment. Development control is considered the most important activity for a local authority. In 1995, an amendment to the planning statutes was made regarding the condition of land, the purpose of a development and its effects on the built environment (Yaakup *et al.*, 2007). This was followed by Development Administration Circular No 2 of 2007, involving the implementation of one-stop centres to accelerate the process of development proposals involved in the processes of the conversion of land, of subdivision, of approval of planning permission, and of building plan approval and technical departments (MHLG, 2007).

The planning approval process involves complex procedures consisting of various stages, especially in the context of the planning department. The process of analysing the appropriateness of planning applications requires many stages of decision-making and expertise from various fields, and, hence, necessitates collaboration among the parties involved to allow the proposed development to be properly evaluated by the relevant decision-making body before planning permission is rendered. According to Development Administration Circular No 1 for Ministry of Housing and Local Government, there are three factors that can delay the process, which are divided into: consultation-cause, planning committee-cause and applicant-cause (MHLG, 2007). Inconsistencies in making decisions due to personal judgement, a lack of comprehensive and up-to-date information, difficulties in obtaining specific data exchange, difficulties and time taken to retrieve hardcopies of documents (Yaakup *et al.*, 2007) and lack of transparency are all causes as to why there are delays in the planning approval process. Consequently, planning permission process is crucial for knowledge sharing initiatives implementation in local authorities in Malaysia. This research attempts to establish the significance of knowledge sharing initiatives and the roles

played by local authorities in the planning permission process with a view to improving that process. To shed light on the significance of knowledge sharing initiatives, it will be helpful to clarify the processes that take place in organisational practices and the behaviour of employees in practicing knowledge sharing initiatives.

Obviously, with regard to knowledge management, the issue of intent is important through having a positive attitude and commitment towards effective knowledge sharing. The goal of this study is to contribute to an understanding of the factors that determine the development of organisational knowledge sharing initiatives. It will do so by exploring the factors that influence the active participation of employees in these communities. Having observed the determinants, the retention of workers with valuable knowledge may be the key element in the knowledge management strategy of an organisation, as it attempts to induce its workers to share their knowledge.

1.3 Why Knowledge Sharing?

From the literature, there are several key reasons why knowledge sharing is needed in the Local Authority Malaysia.

- Construction Industry Master Plan (CIMP) is a comprehensive plan charting the strategic position and future direction of the Malaysian construction industry over the next 10 years. There are seven strategic thrusts in CIMP 2006-2015 and knowledge sharing initiatives is one of the themes under the strategic thrusts that are in line with the Malaysian government's vision to create a knowledge-based economy (CIDB, 2006).
- Diversity in Practice –KM, IM and IT

Knowledge Management (KM) is claimed to be distinguished from Information Management (IM) and Information Technology (IT) (Shields, 2000). IT is about the implementation of computer architecture while IM is the collection and management of information from one or more sources and the distribution of that information to one or more audiences, that are differentiated from KM. Knowledge management is the process of identifying, creating, codifying, sharing and applying (Olomolaiye, 2007) in the organisation to ensure that its knowledge-

related assets are improved and effectively employed. KM has to do with organising information so that it is easily accessible to all employees (e.g creating interactive and searchable databases). Knowledge sharing is one of the main knowledge management processes and it is a people-to-people process (Ryu *et al.*, 2003). Knowledge sharing concerns with the organisational and ‘cultural’ changes needed to encourage people to share knowledge and to use IT tools. Knowledge sharing initiatives (in this context of research) are programmes that create the environment and provide the support to enhance and emphasise a variety of aspects that will make it efficient and effective by enhancing knowledge creation and innovation (Salim *et al.*, 2005). The goal of knowledge sharing initiatives in the public service as Local Authority Malaysia is to improve service delivery and achieve ‘business goal’ through sharing of knowledge between government and the public and between government actors at all levels (Hunter, 1999).

- The retirement of employee is the important issue in the LAM. When an employee leaves, the organisation not only loses his/her knowledge but also investments that have been made in the development and training of that individual. That is why sharing knowledge is important (Lin, 2007; Lee and Al Hawamdeh, 2002).

One of the problem in the LAM is the employees do not know what they know. This is because expertise learnt and applied in one part of an organisation is not leveraged in another (Gurteen, 1999). Therefore, according to Noe *et al.*, (2004), knowledge is valuable to organisations, particularly when it is shared.

All the jobs in LAM are involved with ‘knowledge work’ and as a result all the staffs are knowledge workers to some degree or another. Meaning that their job depends more on their knowledge rather than their manual skills. This means that knowledge sharing is an important process for nearly every person in organization (Caroline De Brún, 2005).

1.4 Why Local Authority Malaysia?

- Knowledge has become a critical determinant of competitiveness for LAM (Yaakup, 2003). Service delivery and policy making are the main tasks for LAM. In the public sector, knowledge is an important element of competition and is a central resource of the government (Cong and Pandya, 2003). Effective functioning of government rests on effective acquisition and dissemination of knowledge (Cong and Pandya, 2003).
- Pluralistic Decision Making - There are many parties and opinions that have to be considered before making a final decision in LAM. These decisions normally will take a longer period of time, as opposed to a business that can often take decisions as quickly as they can. In addition, general public, direct clients, interest groups, media and legislature provide competing feedback that will make the decision process more complex (Denhardt and Grubbs, 2003).
- Local authorities are key players in managing urban development process, acting as decision-makers and service-provider. According to Yaakup (2003) the tasks local authority is expected to continue to perform include
 - a) Provides infrastructure for the efficient operation of cities;
 - b) Provides services, which develop human resources, improves productivity and raises the standard of living of residents;
 - c) Regulates private services that affect community welfare and the health and safety of the urban population; and
 - d) Provides services and facilities that support productive activities and allow private enterprise to operate efficiently.

These activities involved developing and providing knowledge and also human and social capital which makeup LAM unique trading assets. LAM shares responsibilities to ensure that they provide the quality of life intended for its citizens. Due to the task of LAM it is crucial for them to maintain their service provider to the public. According to Yusof *et al.* (2012) knowledge sharing is able to transform public sector to become more productive and competitive.

1.5 Why Planning Permission Process?

- Planning Permission Process is an important element within LAM. This is because according to Laws of Malaysia, (2006) in Abdullah *et al.* (2011) highlighted that in Section 19, the Town and Country Planning Act states that “no person, other than the local authorities, shall, commence, undertake, or carry out any development unless planning permission in respect of the development has been granted to him under Section 22 (treatment of application or extended under Subsection 24 (3) (lapse of planning permission)”.
- Laws, procedures and guidelines pertaining to the development process in Malaysia are quite extensive. Over fifty (50) laws and guidelines have been set in place that will pose a constrain on decisions when undertaking a development project (Abdullah *et al.*, 2011). Those most pertinent and crucial laws to be complied to include the National Land Code (NLC) 1965, the Town and Country Planning Act, 1976 (Act 172), the Government Act 1976 (Act 171), Uniform Building By Law 1984 (UBBL), the Street, Drainage and Building Act 1974 (Act 133) and the Environmental Quality Act 1984 (Abdullah *et al.*, 2011).
- In order to guide the decision makers in Planning Permission Process, various development plans (the national physical plan; a structure plan, a local plan and a special area plan) has been formulated under Part III of the Town Country Planning Act (Town Country Planning Act, 1976). These plans shall form the overall policies for future land development as well as used to establish zoning and planning standards concerning public facilities requirements, roads, open spaces, building setbacks, number of car parks etc. Basically, a layout plan that has been submitted must comply with the national and physical plan, the state structure plan, the local plan, the special area plan and all plans approved by the local authorities of the governing state. For example, when the construction development involves a composition of low cost, medium to low cost and medium cost housing and a specific race (that is Bumiputera or indigenous group) quota, the planner must prepare a layout plan that takes into consideration government policies, guidelines and other technical

requirements in the consideration. Otherwise the proposal will not be approved for development by respective local authority (Abdullah *et al.*, 2011).

1.6 Why Malaysia?

Malaysia's sensible and flexible management approach has enabled the economy to raise its competitiveness and enhance its resilience in facing challenging circumstances. Deliberate measure has been taken to make the economy more diversified and broad-based to ensure sustainable growth. Government policies maintain a business environment with opportunities for growth and profits have made Malaysia an attractive country for construction industry. Knowledge management has been identified as a key factor in ensuring organizational success (Guan Gan *et al.*, 2006). Prior studies have revealed the importance and benefits of knowledge management to local organisations (A.Rahman, 2004; Bank Negara Malaysia, 2005).

The government of Malaysia has a vision for the country to become a fully developed nation by the year 2020 (Mohamed, 2003). In order to achieve this, Malaysia requires a knowledgeable and skilful workforce to compete successfully in meeting the challenges ahead. In this regard, developing human capital is a top priority of the Malaysian government (Hashim 2001). This is approved by Mustapha *et al.*, (2008), Malaysia must be prepared to create a knowledge, skill and expertise through education. According to them from an education perspective, this vision can be accomplished via a knowledge-based economy (K-economy). There is an evidenced by a recent government announcement of an allocation of RM 38.7 billion in the 2013 national budget to further strengthen the education and training system (Malaysian Government Budget, 2013).

A knowledge-based economy is a platform to sustain a rapid rate of economic growth and enhance international competitiveness so as to achieve the objectives of Vision 2020. It will also strengthen Malaysia's capability to innovate; adapt and create indigenous technology; and design, develop and market new products, thereby providing foundation for indigenously driven growth. This commitment requires a high level of capability at economic and social levels, and knowledge management, amongst other business practices, has to be implemented in a number of Malaysian organisations to help achieve this major goal. According to Yu

(2003) many factors have to be utilised to smooth such a transition. One of them is the need for knowledge management and especially knowledge sharing to put in place by all of the organisations has to be aligned with the overall business environment in which they operate. A thorough assessment of knowledge management implementation in Malaysia is required to ensure the competitive advantage of knowledge and its exploitation has been made (Ko, 2003).

1.7 The Research Aim, Research Question, Research Objectives and Research Hypotheses

The research aim, objectives and research question are presented in this section. The research focuses on the extent to which knowledge sharing initiatives impact on the planning permission process and how best this impact can be conceptually modelled and presented for the purpose of improving the process. This has necessitated the review of the extant literature and discussion with some researchers and academicians in the field of knowledge sharing, organisational structure, culture and motivational constructs.

The aim of this research was to establish the significance of knowledge sharing initiatives in the planning permission process and to develop guidance in this regard for local authorities in Malaysia with a view to improving the process.

From the rationale for this research and the research aim, the researcher has formulated a guide for this research through the research question: to what extent do knowledge sharing initiatives impact on the planning permission process and how best is this impact conceptually modelled and presented.

Accordingly, the research objectives were:

- a. Explored the nature of knowledge sharing tools and techniques in local authorities in the context of the planning permission process.

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- b. Ascertained and documented both the frequency and the extent of using knowledge sharing tools and techniques in local authorities and including their efficacies in the context of the planning permission process.
- c. Ascertained the extent to which knowledge typology and different contexts impact upon the use and exploitation of knowledge sharing tools and techniques, and the efficacies of these knowledge sharing tools and techniques with respect to the planning permission process.
- d. Investigated and documented the main challenges and critical success factors for effective knowledge sharing in local authorities with respect to the planning permission process.
- e. Identified and appraised the impact of organisational structure, culture and motivational constructs on the effective sharing of knowledge in local authorities of various sizes with respect to the planning permission process.
- f. Appraised organisational resource implications of effective knowledge sharing in local authorities with respect to the role they played in contributed to the planning permission process.
- g. Measured the impact/contribution of knowledge sharing initiatives in improving the planning permission process.
- h. Developed and validated a conceptual model of knowledge sharing initiatives in local authorities in the context of contribution they made to the planning permission process.

From the rationale for the research and the research aim and objectives above, a set of research hypotheses were formulated to guide the research. These are:

Table 1.1: Research question, objectives and research hypotheses.

Research Question	Research Objectives	Research Hypotheses
To what extent do the knowledge sharing initiative impact on the planning permission process and how best is this impact conceptually modelled and presented.	<ul style="list-style-type: none"> To explore the nature of knowledge sharing tools and techniques in local authorities in the context of the planning permission process. 	<ul style="list-style-type: none"> The exploitation of the use of knowledge sharing tools and techniques differ according to the type of local authority.
	<ul style="list-style-type: none"> To ascertain and document the frequency of use and the extent of use of the main knowledge sharing tools and techniques in local authorities and their efficacy in the context of the planning permission process. 	<ul style="list-style-type: none"> The frequency of use of the main knowledge sharing tools and techniques differ according to the type of local authority. The effectiveness of use of the main knowledge sharing tools and techniques differ according to the type of local authority. There is no correlation between the frequency and effectiveness of use of knowledge sharing tools and techniques approach in the planning permission process.
	<ul style="list-style-type: none"> To ascertain the extent to which knowledge typology and different contexts impact upon the use and exploitation of knowledge sharing tools and techniques, and the efficacy of these knowledge sharing tools and techniques with respect to the planning permission process. 	<ul style="list-style-type: none"> The exploitation of knowledge sharing tools and techniques differ according to the type of local authority. There is no correlations between the frequencies and freely exploit or to gain benefit of knowledge sharing technologies (tools) and techniques approach in the planning permission process.
	<ul style="list-style-type: none"> To identify and appraise the impact of organisational structure, culture and motivational constructs in the effective sharing of knowledge in local authorities of various sizes with respect to the planning permission process. 	<ul style="list-style-type: none"> The organisational structure that impacts on the effective sharing of knowledge in local authorities differs according to the various sizes with respect to the planning permission process. The impact of culture on the effective sharing of knowledge in local authorities differs according to the various sizes with respect to the planning permission process. The impact of motivation on the effective sharing of knowledge in local authorities differs according to the various sizes with respect to the planning permission process.
	<ul style="list-style-type: none"> To investigate and document the main challenges and critical success factors for effective knowledge sharing in local authorities with respect to the planning permission process. 	<ul style="list-style-type: none"> The main challenges are that the impact on effective knowledge sharing in local authorities differs according to the various sizes with respect to the planning permission process. The critical success factors that impact on effective knowledge sharing in local authorities differ according to the various sizes with respect to the planning permission process.

1.8 Research Scope

The research focused on the planning permission process in local authorities in Malaysia. The predominant roles of these local authorities included being the agency responsible for policy formation and planning, controlled and coordinated the implementation of duties. This research established the significance of knowledge sharing initiatives in the planning permission process and developed a guidance in this respected for local authorities in Malaysia with a view to improving the process. The research identified the impact of organisational structure, culture and motivational construct on the effective sharing of knowledge in these organisations. It investigated the main challenges and critical success factors for effective knowledge sharing and appraised the organisational resource implications for effective knowledge sharing in local authorities.

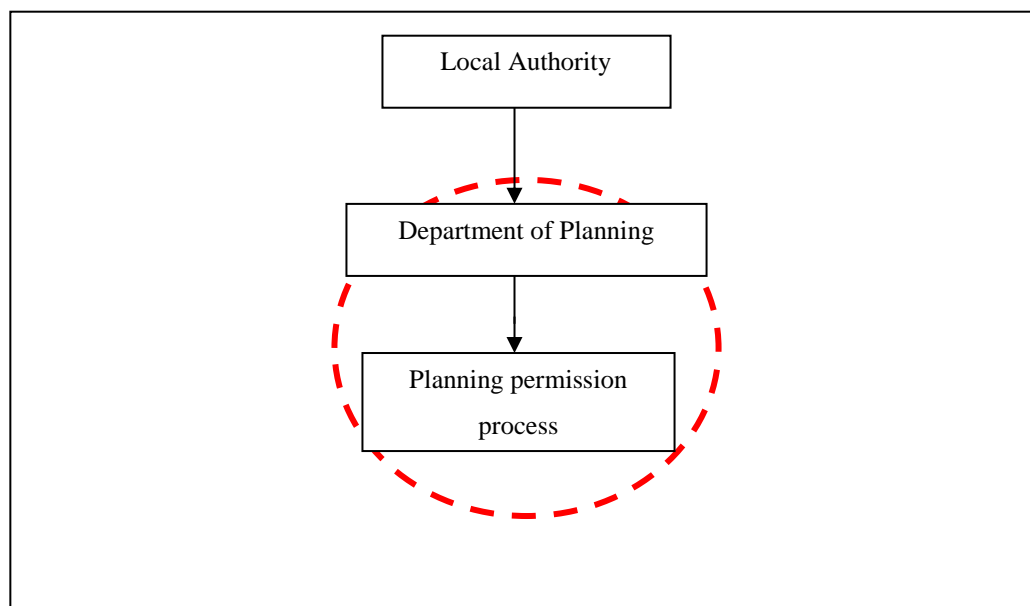


Figure 1-1: Research Scope

1.9 Uniqueness and Novelty

The proposed conceptual model of knowledge sharing initiatives in local authorities in the context of the contribution they made in the planning permission process could be used by the local authorities themselves, by policy makers and other government agencies in considering, evaluating and attempting to improve the process of knowledge sharing in their agencies. Furthermore, the model could be used to increase awareness of the outcomes of implemented knowledge sharing and also improved the existing internal organisational knowledge sharing processes. In addition, the development of such a guidance to knowledge sharing initiatives could also helped to manage the knowledge within organisations in improving their services.

1.10 Contribution to Knowledge

The contribution of this research to the existing body of knowledge could be listed as follows:

- a. The research added to, and filled the gap in the existing literature with respect to the importance of knowledge sharing in local authorities in Malaysia by mapping the issues that created knowledge sharing initiatives in the planning permission process.
- b. It contributed to an understanding of the factors that were extremely critical for LAM which need to be considered in order to enhance knowledge sharing initiatives and, at the same time, they could enhance service delivery in government administration. These factors have not been systematically presented before.
- c. The model of knowledge sharing initiatives in local authorities represents an integrated approach in the context of the contribution they made to improve the planning permission process and their measurement was the basis through which it was possible to control and evaluated KSI.
- d. The guidance has established the significance of KSI in presenting an integrated approach for the people involved in local authorities concerning their duties, responsibilities, where such duties and responsibilities should take place, which methods to implement, when to implement KSI, and when implemented, to

Introduction

successfully establish KSI in the planning permission process. In addition, this guidance will provide for awarenessness and an understanding of the importance of knowledge in organisations and how to preserve the tacit knowledge held in the employees' minds.

1.11 Research Programme

In accordance with the aim of the research, the research programme was divided into four steps as shown in figure 1.2.

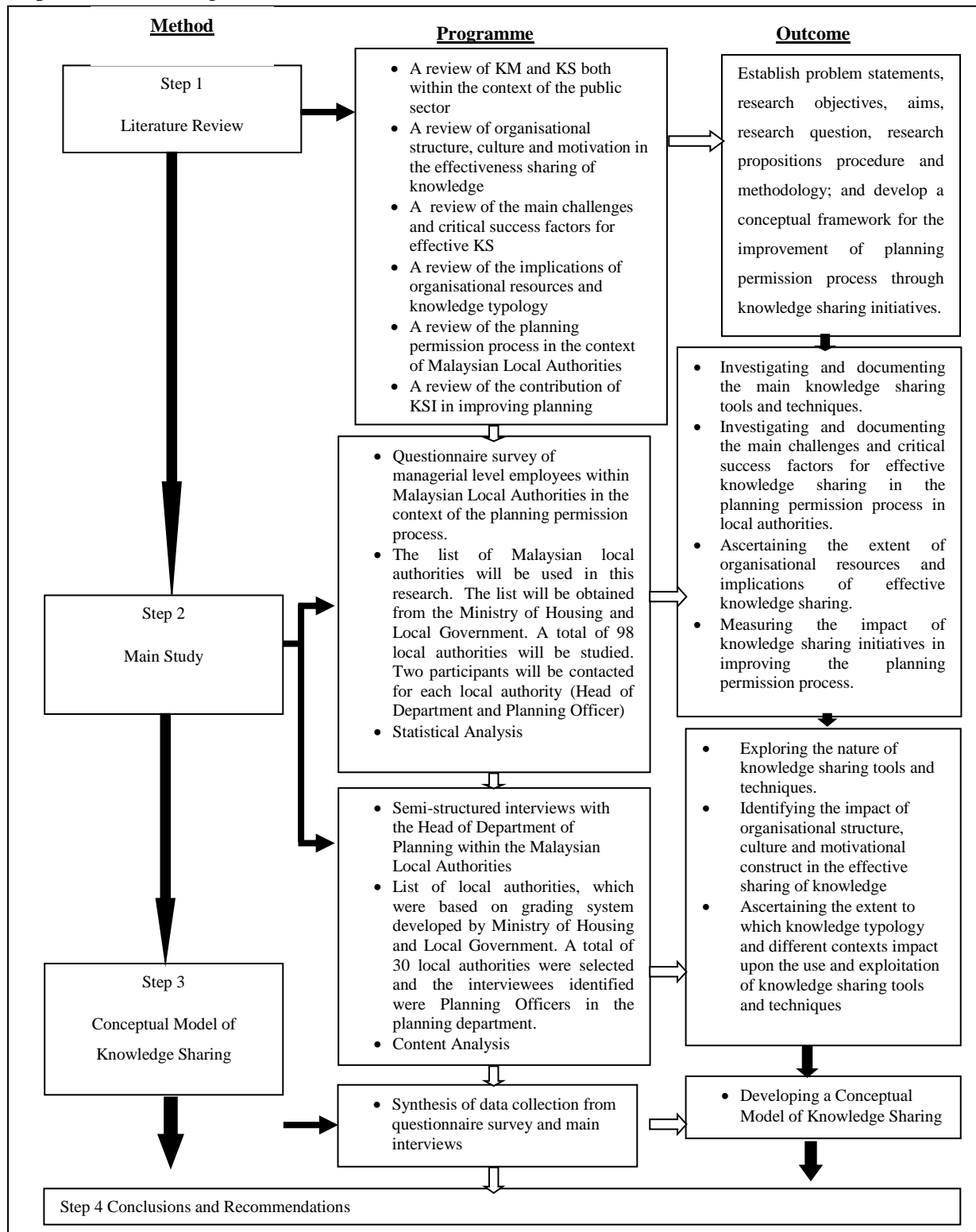


Figure 1-2: Research Programme

1.12 Structure of the thesis

This thesis consists of ten chapters as shown in the figure below.

Chapter 1: Introduction

This chapter presents the background and overall content of the whole thesis. It introduces a review of the research needs in KM, the research theme, the nature of the problem investigated and the justification for the research. The aims and objectives are specified along with an appropriate research methodology to achieve them.

Chapter 2: Review of the literature on local authorities in Malaysia and knowledge management

This chapter presents a literature review of the historical background of local authorities in Malaysia. It discusses the types of local authority and also defines local authorities as knowledge intensive organisations. In the context of KM, the researcher highlights the importance of KS, KS in the Malaysian government and discusses knowledge sharing initiatives.

Chapter 3: Research methodology

This chapter discusses the research methodology adopted in this research, method of data collection and analysis of the techniques employed. It also addresses important issues associated with the design of the questionnaire instrument, questionnaire administration and semi-structured interviews. The reliability and validity are also discussed in this chapter.

Chapter 4: Knowledge sharing technologies (tools) and techniques in the planning permission process.

This chapter presents details on knowledge sharing technologies (tools) and techniques in the planning permission process. It explores and documents the frequency of use, extent of use, and the efficacy and exploitation of the use of KS technologies (tools) and techniques.

Chapter 5: The impact of organisational structure, culture and motivational constructs in the effective sharing of knowledge in local authorities.

This chapter presents the impact of organisational structure culture and motivational constructs for the effective sharing of knowledge in local authorities. Empirical data from both semi-structured interviews and a questionnaire survey show that these three factors have an impact on the effective sharing of knowledge in the planning permission process. It also shows the different impacts between the three types of local authority. Recommendations are also given to overcome these issues for the effective sharing of knowledge in local authorities.

Chapter 6: The main challenges and critical success factors associated with effective knowledge sharing in local authorities

This chapter discusses the main challenges and critical success factors for effective knowledge sharing. Evidence from the empirical data shows the main challenges and critical success factors in the planning permission process, which is explored and documented. A hierarchical organisation inhibits or slows down most sharing practices, hence; communication and knowledge flow are confined to selected groups of individuals within the organisation.

Chapter 7: Organisational resource implications of effective knowledge sharing

This chapter discusses the findings of the questionnaire survey on the organisational resource implications of effective knowledge sharing.

Chapter 8: Measure the impact/contribution of knowledge sharing initiatives

In this chapter, the importance of measuring the impact/contribution of knowledge sharing initiatives is discussed. Evidence from empirical data shows that KSI contribute differently in the planning permission process.

Chapter 9: The development and validation of a model of knowledge sharing initiatives in local authorities and guidance for establishing the significance of knowledge sharing initiatives in local authorities in Malaysia

This chapter outlines the development of a model of knowledge sharing initiatives and the guidance for establishing the significance of knowledge sharing initiatives. The guidance covers the awareness, understanding, responsibilities and duties of all employees in local authorities in the context of the planning permission process. The testing and validation of a model and the guidance are also described and the outcome discussed.

Chapter 10: Conclusion and recommendations

This chapter presents the conclusion and recommendations for practice and further research emanating from the findings.

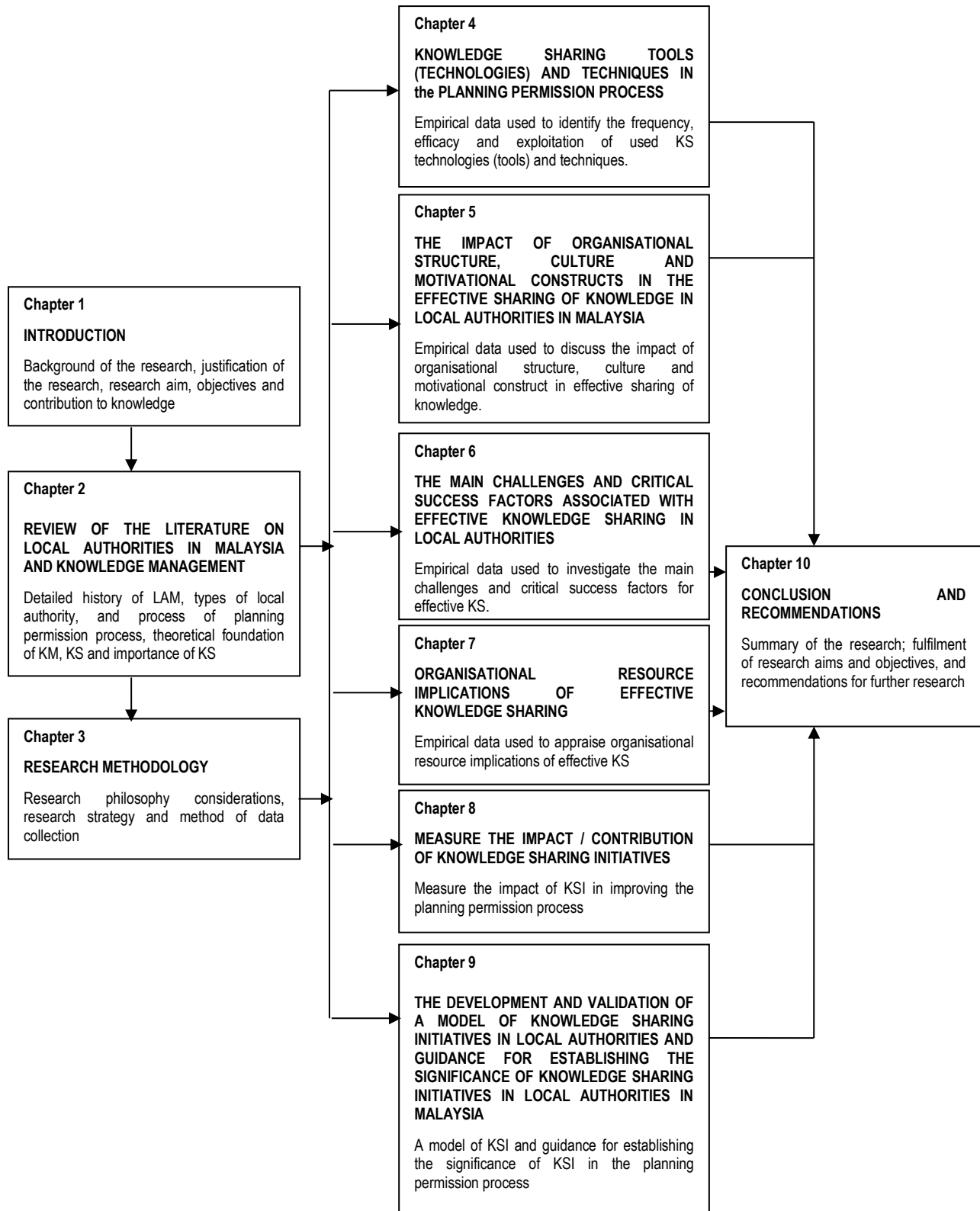


Figure 1-3: Structure of the thesis

CHAPTER 2. REVIEW OF THE LITERATURE ON LOCAL AUTHORITIES IN MALAYSIA AND KNOWLEDGE MANAGEMENT

2.1 Introduction

This chapter is a part of the first step towards undertaking the research. In the previous chapter the general background for the thesis was introduced, the rationale for the research was justified and the research aim, objectives and research questions were presented. This chapter is divided into two main parts. The first part begins with Malaysia socio-economic and political, the historical background of the local authorities in Malaysia, local authorities as a knowledge intensive organisation and an overview of the process of the planning permission process. The second part of this chapter will discuss knowledge sharing, the importance of knowledge sharing and knowledge sharing within local authorities in Malaysia. This chapter ends with a summary of the issues associated with knowledge sharing in local authorities in Malaysia.

2.2 Malaysia Socio-Economic and Political

Malaysia has made considerable impacts in nation building, in developing its economy and in improving the quality of life of its people. Rapid advance has been made in developing its economy. The growth in output and productivity has brought about a rise in the general standard of living. The economy has been able to embark on substantial programme of rural development, an expansion of health, housing, education and other services and the extension and improvement of transport system, public utilities and other infrastructure needed for development (Economic Planning Unit, 2010).

The real gross domestic product (GDP) has grown from 5.1 per cent per annum in 2011 to 5.6 per cent per annum in 2012 (Ministry of Finance, 2012). The development and construction sector continued to register impressive growth. The sector recorded a marked expansion of 14.7 per cent in first quarter 2013 (Department of Statistic, 2013). Civil Engineering

continues to grow the most with 36.2 per cent reinforced by infrastructure projects (Department of Statistic, 2013). Moreover, Residential rose to 9.8 per cent stimulated by housing development projects. This is in line with Malaysian population of 28.3 million (2010) and the proportion of urban population increased to 71.0 percent in 2010 (Department of Statistic, 2013).

Malaysia achieved rapid development after 54 years of independence because of the country's political strength and stability. Prime Minister Datuk Seri Najib Tun Razak said "The Government's leadership under the Barisan Nasional achieved success after success. The success was also based on a power-sharing formula practised since the country's independence" (Star, 2013).

The government through Ministry of Housing and Local Government (MHLG) and the Federal Town and Country Planning Department (FTCPD) also monitors the performance of National Urban Policy. The objectives are to guide and coordinate the planning and urban development to be more efficient and systematic in particular to manage the increasing number of urban residents in 2020. This policy outlines the core, policies, measures and action plans to coordinate and manage the implementation of urban development. Urban development in Malaysia has grown rapidly, especially over the past two decades where the urbanisation rate increased from 54.3% in 1991 to 65.4% in 2000 (MHLG, 2009). It is expected that this rate will increase to 75% by 2020.

Several efforts have been taken to improved development programmes through Tenth Malaysia Plan (2011-2015);

- Utilising developmental plans as a platform for integrating the planning and implementation of rural and urban infrastructure development programmes;
- Improving existing administrative processes to reduce time required.
- Establishing effective programme management and governance of projects.

The Malaysian Government, along with other governments around the world, is faced with operating in a rapidly evolving global environment. Expectations and demands for public services are increasing; fiscal positions are tightening and issues are more complex as they

cut across traditional organisational and geographical boundaries. This new environment requires a new approach. In Tenth Malaysia Plan (2011-2015) the Malaysian Government will be transformed into a government that embodies the following four principles (Economic Planning Unit, 2010):

- Delivers through creativity and innovation.
- Emphasises speed of decision-making and execution.
- Delivers value-for-money
- Upholds the highest level of integrity

The implementation of these measures will contribute to making the aspiration of an innovative, speedy and prudent government that delivers with integrity, a reality.

2.3 Local Authorities in Malaysia

In Malaysia, the country's administration comprises three structures: the Federal Government, the State Government and the Local Government. Malaysia contains 13 states and power is distributed between the Federal and the State Government in each of the 13 States. All government policies are implemented through various ministries and departments, together with the agencies under them (Government of Malaysia, 2009).

A local authority (Malay: kerajaan tempatan or pihak berkuasa tempatan (PBT)) is the lowest level of the system of government in Malaysia (Federal and State) (Article 95A (1957), Constitution of Malaysia). They were constituted under an Act of Local Government 1976 (171 Act) for Peninsular Malaysia, Local Government Ordinance 1961 (Sarawak No. 11 of 1996) and Local Authorities Ordinance 1996 (Sabah- Chapter 20) to ensure that these agencies are able to freely carry out their duties (Article 95D (1957) Constitution of Malaysia, (Government of Malaysia, 2009).

The history of local government in Malaysia started in 1801 when a body called the Council of Assessors (Majlis Penilai) was established in Penang. At that time, the Council was given the role of planning and implementing urban development. This led to the establishment of local governments in Malaysia. The local government system that is practiced in Malaysia was inherited from the British who ruled Malaya for over two centuries before independence

was achieved on 31 August 1957 (Norris, 1980). Therefore, most of the laws and regulations that exist are similar to British law.

2.3.1 Historical Background of Local Authorities in Malaysia

The history of the Malaysian local authorities began in 1801, as the States of the Straits in Malaya. In early 1950, the Local Government Elections Ordinance was enacted and then came the Local Government Ordinance of 1952, which also empowered local residents to form local governments where necessary. At the end of the British colonial era, there were a total of 289 local governments in the Malay Peninsula (Report of the Royal Commission, 1972).

The decade of the 1960s, post-independence, was a very challenging time for local governments. Local governments faced internal problems relating to administration and politics, Indonesian confrontation against the formation of Malaysia in 1963 forced the suspension of local government elections. Since that year, local governments in Malaysia are no longer elected (Tennant, 1973).

A Royal Commission of Inquiry was established in 1965 to investigate the issues, which were exacerbated by the existence of various types of local council and also by the complexity of the enforcement of various ordinances, enactments, by-laws and varying regulations. A cabinet committee reviewed the report of the Royal Commission and restructuring began with the introduction of the Local Government Act (Temporary Provision) 1973 for Peninsular Malaysia (Government of Malaysia, 1972). This Act provided for the constitution, while the federal government reviewed all the laws relating to local government held by the governments of the states. As a result, three new laws were enacted that directly altered the local government system, namely: (1) the Street, Drainage and Building Act of 1974 (Act 133), which explained the role of the local authority regarding drainage and the maintenance of municipal roads as well as public buildings, (2) the Local Government Act of 1976 (Act 171), which set out the form, structure, organisation, duties and responsibilities of local government as a whole, and (3) the Town and Country Planning Act of 1976 (Act 172), which was promulgated in order to overcome the weaknesses in the planning of land use in local areas (Singh, 1994).

In Sabah, the local authorities were established through provisions under the Local Government Ordinance of 1961. This Ordinance also outlined the responsibility and function of local councils in Sabah. In Sarawak, local authorities were established under the Local Authority Ordinance of 1996. This Ordinance was the successor of a pre-independence law, the Local Government Ordinance of 1948. Other laws regulating the running of local authorities in Sarawak include the Building Ordinance of 1994, the Protection of Public Health Ordinance of 1999 as well as by-laws formulated under these main laws (Singh, 1994).

The constitution of 1957 gave exclusive power to local governments to the state except those in the federal territories (Constitution of Malaysia). In addition, under the Malaysian Constitution (Article 95 A), there is an allocation for the establishment of a consultative committee of the National Council for Local Government (Malay: Majlis Negara bagi Kerajaan Tempatan). The role of the Council is to determine the laws that administer local governments and local decision-making and that indirectly have a considerable impact on the federal government (Government of Malaysia, 2009).

The local government system in Malaysia is carried out based on the principle of *ultra vires* or beyond the power and general efficiency (Yahya, 1987). Local governments were given wide-ranging powers under the Local Government Act of 1976. The act stipulated that local governments have the power to undertake their required tasks at their own discretion. The roles undertaken by local government can be divided into basic roles and additional roles (Government of Malaysia, 1972). The basic roles are those that include collecting and managing waste and garbage, providing basic amenities and activities related to public health, while the additional roles relate to collecting taxes (in the form of assessment tax), to creating laws and rules (in the form of by-laws) and to granting licences and permits for any trade in the area of their jurisdiction.

2.3.2 Types of Local authority

There are a total of 151 local authorities in the Malaysian governing system (Government Malaysia, 2009: 98 local authorities in Peninsular Malaysia, 5 agencies authorized by the State government to carry out the functions of local authorities, 22 local authorities in Sabah and 26 local authorities in Sarawak (Ministry of Housing and Local Government (2007).

Appendix 1 presents a list of local authorities in Malaysia. The types of local authority (council or local government) in Malaysia are divided into (Ministry of Housing and Local Government (2007) :

- City authority
- Municipal authority
- District authority

Typically, the highest officials in local government are called Mayors within cities, while the title President of the Council or President of the Municipal or District authority is used for the other two categories.

The types of local authority are based on the following criteria (Ministry of Housing and Local Government (2007) :

- The administrative centre of a state, major cities or district
- Total population, i.e., cities more than 500,000, municipalities more than 150,000 and districts less than 150,000.
- Annual yield
- Services
- Total number of employees

The rapid growth of the population and development, and the increasing rate of urbanisation and local authority resources (financial and manpower) have assumed increasing importance in local authority management (Ministry of Housing and Local Government, (2007b). This is because the resources determine the efficiency and effectiveness of local authority operations. Without adequate resources, it is difficult for local authorities to fulfil their duties as providers of services and act as facilitators of socioeconomic growth at the local level. However, resources are always a major constraint that local authorities face. Given that resources are critical to local authority management, it is imperative that local authorities develop a good administration system. The table below shows a breakdown of the sources of local authority revenue.

Table 2.1: Breakdown of source of Local Authority Revenue in Malaysia

Revenue by Source	Percentage
Assessment rates	47.38
Grant-in-aid of rates	3.60
Rentals from holding	5.27
Licences	5.97
Fees, charges and services	20.1
Grants (federal and state)	17.07
Other tax revenue other than assessment	0.50
Total	100

Source: Ismail (1995)

The mayor or president of that particular local authority should approve in the budget meeting and all expenditure incurred by local authorities. He or she acts as the control officer and is responsible for the expenditure. The total sum of a local authority's revenue depends heavily on its population as well as the economic activities (infrastructure, advancement in commerce and industry) in the respective authority. These resources appear to vary from one local authority to another and the revenue is associated with the level of development of the local authority area. Conversely, poor fiscal administration may be caused by a low standard of reporting, poor monitoring and revenue collection. Therefore, according to Phang (1997), an appropriate reporting system can help the local authority to monitor and compare the actual cost of expenditure against the total revenue throughout the year. Although LAM receives revenue from taxes, rental and licences, they also obtain financial provisions from MHLG according to the type of local authority (Berita Harian, 2010).

In respect of the total number of employees, normally, large organisations have a large number of staff compared with municipal and district authorities. The Table 2.2 below shows a comparison of the number of staff according to the type of local authority.

Table 2.2: Comparison between numbers of staff in local authorities

Types of local authority/ council	Number of staff
City	296
Municipal	171
District	100

Source: Shah Alam City Council (2010); Ampang Jaya Municipal Council (2010) and Pontian District Council (2010)

In the context of the planning permission process, the table below shows the total number of staff for planning departments and One-Stop Centres.

Table 2.3: Total number of staff in planning department

Position	City	Municipal	District
Head Department (J48)	1		
Senior Planning Officer (J 44)		1	
Planning Officer (J41)	4	1	
Senior Assistant Planning Officer (J32)	1		1
Assistant Planning Officer (J29)	4	2	
Technician (J17)	34	2	3
Supporting Staff			
Total	44	6	4

Source: Shah Alam City Council (2010); Ampang Jaya Municipal Council (2010) and Pontian District Council (2010)

Table 2.4: Total number of staff in One-stopCentre

Position	City	Municipal	District
Head Department (J48)			
Senior Planning Officer (J 44)	1		
Planning Officer (J41)	1	1	1
Senior Assistant Planning Officer (J32)			
Assistant Planning Officer (J29)	1	3	3
Technician (J17)	3	3	
Supporting Staff	3	2	2
Total	9	9	6

Source: Shah Alam City Council (2010); Ampang Jaya Municipal Council (2010) and Pontian District Council (2010)

Tables 2.3 and 2.4 indicate that the persons in charge for both the city and municipal authorities in the planning and OSC department were from officers of grade J48 and grade J44 (their minimum qualification is a degree), which contrasts with the district authority in which the officer in charge was from grade J32 (minimum qualification is diploma).

Below is a discussion on why local authorities are knowledge intensive organisations.

2.3.3 Local Authority as knowledge intensive organisation

Local authorities in Malaysia constitute the third tier of Malaysia's government, and although most of them have small populations, some cover vast areas. The category of local government is based on their population. Most of their tasks are to develop, implement policies and be responsible for managing and administering an area based on local interest. The tasks are heterogeneous and diverse consisting of different departments, policies, roles and professionals with expertise who provide a range of services for demanding citizens, customers and the wider community. These tasks need to access the best information and knowledge available within the organisation and other government agencies. Although the knowledge group of occupations is not particularly homogeneous, some categories of occupations – legislative, technological and administrative activities –are more knowledge intensive.

Too often, a local authority is known only to its clients or citizens for its services (environmental health, leisure, planning, social, waste, emergency planning and development). This is despite the very high level of 'service input' needed in its formation. Therefore, local authorities in Malaysia as knowledge-intensive organisations rely on professional and expert knowledge relating to specific tasks or services. Most of their staff or employees are well educated and experienced in their field. In addition, with their multi-tasking responsibilities, teamwork and collaboration is required between staff to achieve high quality services. Therefore, knowledge is more important than other inputs. Alvesson (2001) defined knowledge intensive organisations as those where most of the work is of an intellectual nature, in which well-educated, qualified employees form the major part of the workforce and added human and social capital are the key factors for the success of the

knowledge-intensive organisation. Similarly, Ditillo (2004) viewed organisations that mainly use the knowledge of their individuals to develop and trade regardless of the response to customer requirements. Human capital includes competences; knowledge (tacit and explicit) and personal attributes brought into the organisation through its knowledge workers, while social capital refers to knowledge that is embedded in the organisational relationships and routine. There are, however, difficulties presented to organisations in that they risk losing this knowledge when the knowledge workers who possess such knowledge leave or retire.

Table 2.5: Type of knowledge used by knowledge workers in Malaysia's local authorities

Department	Knowledge type	Tacit/explicit knowledge
Administration Services Department	Organisational – specific knowledge Customer or client knowledge	Explicit knowledge – process and procedural knowledge of local authority. Social capital – knowledge that is embedded within the organisational relationships and routines
Town Planning and Development Department	Technical knowledge Customer or client knowledge	Tacit and explicit knowledge – technical knowledge acquired through formal education or work experience and shared at the organisational level and develops good relationships between client/customer. Social capital – knowledge that is embedded within the organisational relationships and routines
Legal Department	Professional knowledge Legislative knowledge Customer or client knowledge	Knowledge of legislation – Legislate and repeal by-laws, decrees, legislation and procedures. Social capital – knowledge that is embedded within the organisational relationships and routines
Engineering Department	Technical knowledge Customer or client knowledge	Tacit and explicit knowledge – technical knowledge acquired through formal education or work experience and shared at the organisational level and which develops good relationships between client/customer. Social capital – knowledge that is embedded within the organisational relationships and routines
Information technology Department	Technical knowledge	Tacit and explicit knowledge, e.g., knowledge kept in books or reports and also professional judgement on what is appropriate rather than just following the books or manual

Knowledge-intensive organisations such as local authorities' imply that knowledge and human capital have more importance than other input (physical, financial and labour). LAM reliance on human capital (creativity, knowledge used in the work and skills), specialised expert knowledge and the problem-solving know-how are the real product of knowledge intensive services. For example, Robertson and Swan (2003) suggested that one of the key characteristics of a knowledge-intensive organisation is 'their capacity to solve complex problem through the development of creative and innovative solution'. In this vein, LAM, as knowledge intensive organisations need to attract the right individuals with the right expertise, as well as integrate the knowledge of those recruited in order to carry out activities mostly characterised by uncertainty, such as in the process of planning permission.

2.3.4 Development Plan for Malaysia

The system of administration in Malaysia is involved in the development of the country. In terms of planning this involves land policies – both the physical (spatial) plans and the five-year development plans are prepared at the federal and state level. The Malaysia Plan is a long-term (five-year) plan dictated by federal law and formulated by the Economic Planning Unit of the Prime Minister's Department. It was created as a means of managing the Outline Perspective Plan (Economic Planning Unit, 2004). There are two other plans designed to facilitate the long-term national development goals and strategies contained within the framework of the Malaysia Plan. These plans are known as Vision 2020 and the Outline Perspective Plan (Government of Malaysia, 1991).

Planning in Malaysia is guided by the National Physical Plan (NPP) at the highest level. The National Physical Plan (NPP) outlines strategic policies for the purpose of determining the general direction and trend of the nation's physical development. At the national level, the objective of this plan is to identify land, which would be available for future urban development by maximising existing resources or investment, and preserving the natural environment and national assets. This identified land includes existing urban areas, areas with physical constraints and agricultural areas that should be preserved (Federal Department of Town and Country Planning, Malaysia, 2005).

At the State level the five-year development plan and the Regional or Structure Plan maintain and facilitate long-term national development. The strategic policies, which set out the national physical trends for development, are implemented by the State Structure Plan (Federal Department of Town and Country Planning, Malaysia, 2005).

According to the Town and Country Planning Act of 1976 (Act 172) Part III, the State Structure Plan is a written statement of the policies and general proposals by the State Planning Committee, regarding the development and use of land for the state. The State Structure Plan indicates the way in which an area is proposed for development, as well as provides a broad framework to guide the local authority when it considers subdivisions and the development proposals, and when required changes in the sectorial policies occur, which will then consequently affect the development of the state (Federal Department of Town and Country Planning, Malaysia, 2005).

The planning system in LAM consists of development plans and a development control procedure. Development plans or the district local plans (DLP) are legal documents that become the basis of development guidelines and control, which translate the state policies to the local level (Federal Department of Town and Country Planning, Malaysia, 2005). These plans contain such details as land use zoning, development density, and building height, plot ratio, etc., which require detailed information for each plot of land. A zoning plan, for example, covers a large area that contains various land uses (Khair, 2007). A special area plan is another development plan that takes the form of, and has the same effect to that of a local plan. However, this plan contains proposals for special and detailed treatment by development, redevelopment, improvement, conservation or management practice and the treatment proposed. In contrast, development control is used to control development and in satisfying all parties by maintaining comfort, convenience and efficiency and preserving the built and natural environment. Development control is considered the most important activity for a local authority and covers such things as the planning permission process and the building approval process. Figure 2-1 shows the hierarchy of physical development plans in the Malaysian context.

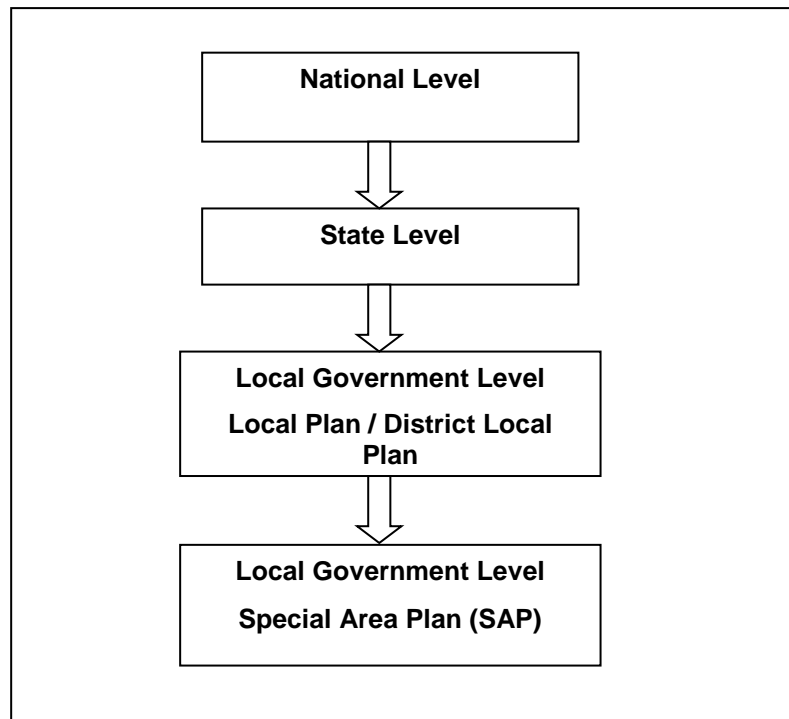


Figure 2-1: Hierarchy of Malaysian Physical Development Plans

2.3.5 Overview of the Planning Permission Process

Planning permission in Malaysia is the permission granted in order to be allowed to build on land or change the use of land or a building. Within Malaysia, the occupier of any land or building will not only need the title to that land or building (ownership), but will also need planning permission (Khair M.M.F, 2007). Planning permission is interpreted as "permission granted, with or without conditions, to carry out development". (Subsection 2(1)) Town and Country Planning Act 172, 1976) and "every local authority shall be the local planning authority for the area of the local authority" Subsection 59(1) of Act 172 Town and Country Planning Act, 1976 (Law of Malaysia, 1976). Since that date any new "development" has required planning permission. "Development" as defined by law consists of any building, engineering or mining operation, or the making of material change of use to any land or building (Federal Department of Town and Country Planning, Malaysia, 2005).

The Local Government Act 1976 (Act 171) was promulgated to provide a consolidated framework for local authorities in Peninsular Malaysia and also to empower the authorities to

undertake a wide range of functions (Law of Malaysia, 1976b). The planning powers for local authorities were stipulated in the allied Town and Country Planning Act. According to Act 171, a local authority shall be the local planning authority for the area of the local authority. “In order to carry out this function, the local authority shall prepare a two-tier development plan for the purpose of organising, controlling and planning the development and use of land and buildings in their area (Federal Department of Town and Country Planning, Malaysia, 2005). Strategic or policy decisions regarding development plans are to be incorporated in Structure Plans and detailed decisions are to be laid out in the Local Plans” -Town and Country Planning Act 1976 (Law of Malaysia, 1976).

In the context of urban planning, planning permission is a written permission from the Local Planning Authority. According to the Town and Country Planning Act of 1976 (Act 172), subsection 2 (1), planning permission is interpreted as permission given, with or without conditions, to carry out the development. Subsection 19(1) provides that no person, or other local authorities (PBT) can start, operate, or undertake any development unless the planning permission in respect of the development has been given to him/her/them under section 22 or extended under subsection 24 (3) (Khair, 2007). In general, planning permission is a procedure in which the applicant must submit an application to the local planning authority to obtain approval before embarking on any development on land or on a building as provided under section 21A [Proposed Development Report (LCP)] and section 21B [layout Plan]. In other words, gaining planning permission is a procedure that requires the applicants to submit documents, plans and fees, as may be prescribed by the Local Planning Authorities in relation to a development proposal for any land or building (Federal Department of Town and Country Planning, Malaysia, 2005).

Planning permission is a development control tool imposed by the Local Planning Authorities in implementing development control over every planning application. This means that whoever is interested in undertaking development has to first obtain planning permission and has to abide by all the conditions imposed by the Local Planning Authorities in granting the planning permission. Applications for planning permission (including planning approvals, building plans and earthworks, road and drainage plans) are processed by the local planning authorities (local authorities) simultaneously and involve the Planning Department, the

Building Department and the Engineering Department (Khair, 2007). In addition, there are also reviews and opinions from the Technical Department, the Department of Irrigation and Drainage, the Department of Town and Country Planning, the Public Works Department, Tenaga Nasional Berhad, the Department of Health, the Fire and Rescue Department, the Sewerage Services Department, the State Water Authority and other relevant departments before any planning permission or approval is given (MHLG, 2000). All comments and views from these technical agencies will be taken on board to ensure that the proposed development, if permitted, will be compatible with the environment in terms of comfort, safety and maintenance. Most local authorities in Malaysia are able to grant or refuse any planning permission for development in their area (Khair, 2007). For instance, in the planning permission process, an applicant's application means submitting the required plans and documents to the local authorities (planning department or unit), which will then investigate and scrutinise those plans and documents before deciding whether to grant planning permission or to reject the proposed development. The application for planning permission will be assessed in terms of the current development scenarios, land information, planning requirements and planning design (Yaakup *et al.*, 2002)

Therefore, there are two main reasons for choosing the planning permission process for this research:

- a) The planning permission process is usually left to highly skilled professionals (planning officers), decision makers of local authorities, interrelationship between legislature, development plan and general implementation of planning permission process have give a very high challenge in providing an effective implementation and development control. The Government of Malaysia (2007) has identified weaknesses in development control including lack of cooperation between the department and other government agencies, overlapping of procedure process and delegation of power between officers. Du *et al.* (2007) defined knowledge sharing as a good way to effectively and efficiently create, sustain, and transfer knowledge. The ability of an organisation to create, share and transfer knowledge has a very great impact on its performance.
- b) To meet the objectives of Vision 2020, a knowledge-based economy and knowledge society, the need for the public sector, especially local authorities, to acquire the skills of problem-solving, independent thinking, as well as the ability to work co-

operatively to exploit their knowledge and effective knowledge sharing among team members are now recognised to be 'the key drivers of new knowledge and new ideas' to the innovation process, as well as to new innovative products, services and solutions.

2.3.6 The Process of Planning Permission in Malaysia's Local Authorities

The planning permission process undertaken by local authorities (local planning authorities) involves complex procedures as well as various stages. The process of analysing the appropriateness of a planning application requires many stages of decision-making, and, hence, necessitates collaboration among the employees involved to allow the proposed development to be properly evaluated by the relevant decision-making bodies before a planning permission is granted.

An application for planning permission will be processed by a planning officer of the local authority. Generally, the time taken to process an application will take about 50 days, and for applications within the local plan, it should not exceed 25 days from the date of registration (MHLG, 2000). An application form will have several attachments (such as a land assessment receipt, a report on the planning permission and the layout plan (prepared by a registered urban planner), a contour plan (prepared by a registered surveyor), landscape and a list of neighbouring landlords (owning the surrounding lots) that will be required before processing the application (MHLG, 2000). The planning officer will refer to the development plan and guidelines. This will include checking with the local authority local plan and structure plans, and that the application complies with the Town and Country Planning Act of 1976, the Street, Drain and Building Act of 1974, the Local Government Act of 1976 and the National Land Code of 1965 (MHLG, 2000). If any application does not meet the requirements of the local authority local plan, the planning officer will write a letter to neighbouring landlords (owning the surrounding lots), informing them of the possible new development near their lot. If there are any objections from a surrounding neighbouring landlord, the local authority can call for a 'Hearing' (Trial), at the same time referring to the local authority local plan and structure plans. This 'Hearing Process' is to ensure that the proposed development complies with Act 172 (Town and Country Planning Act, 1976), Act

133(Street, Drain and Building Act, 1974), Act 171 (Local Government Act, 1976) and Act 56 (National Land Code, 1965) (MHLG, 2000).

If the application is compatible with the local authority local plan, the application will be reviewed by the State Planning Department and the National Physical Planning Council to get advice. At this stage, certain aspects of the application should be taken into account, such as whether the development involves an area on the top of a hill or on a hillside, whether it is in an area that has been scheduled as a sensitive environment and whether the development population exceeds 10,000 people or the development covers an area that exceeds 100 hectares, or both, as stated in Subsection 22 (2A) Act 172 (Town and Country Planning Act, 1976) (Law of Malaysia, 1976).

An application, if it meets the requirements, will be conducted through the process and a report will be prepared and submitted to a One-Stop Centre for approval. However, if there are any changes that need to be made to the application and these changes are not made within 7 days after receiving the instruction to change it, then the application is considered withdrawn. Table 2.6 shows the planning permission process for local authorities in Malaysia. (See Appendix 3)

2.3.7 The Strength and Weaknesses of Planning Permission Process

Inrealising the government's aspiration to achieve excellence in Public Delivery System especially in the context of PPP, the Ministry of Housing and Local Government (MHLG) has taken the initiative to revamp and re-engineer procedures and processes implemented via;

- i. Establish and maintain cooperative relationship among federal government and state government and also other government agencies in all affairs relating with policy and administration of Local Authorities.
 - a. Strengthen the role of planning permission. According to MHLG (2010) development proposal report is the primary document that must be submitted with an application for planning permission. This report shall be prepared to explain

and detail the proposed development as a reference by the local authority and the relevant technical agencies in consideration of applications for planning permission.

- b. According to Development Administration Circular No. 1 of 2007 for Ministry of Housing and Local Government (MHLG, 2007), in every local authority, an officer has been added in the structure of organisation with the aims to speed up the planning permission process.
 - c. Restructuring of One Stop Centers- with the aims to facilitate the process of planning permission. This department will act to coordinate, control and monitor the planning permission process application from the applicant to the land office, planning department and technical agencies to avoid duplication of cases during the technical review process (MHLG, 2007).
- ii. Introducing work procedures and system, concept of “Bersih”, ‘Cekap’ and “Amanah” to improve the services to public.
- a. Implementation of a computerised development control and approval system is seen as an important tool in facilitating and accelerating the process of development control and approval in a local authority (Yaakub *et al.* 2002).
 - b. Implementation of Malaysian Standard Quality Management System. Such as ISO 9002, Total Quality Management, Work Quality Improvement Group, upgrading of the quality of counter service and presentation of quality awards. The implementation of these programs has provided a sound basis for LA in the provision of quality service to the public. These programs have helped to upgrade the capability of LA in quality management.

On the other hand the weaknesses of PPP are;

- i. Lack of transparency in decision-making process.
 - a. Lack of participation from the public during the planning permission approval process. This is carried out through the right of the adjoining neighbours to express their complaints over land development projects that may affect them (Dewan Bandaraya Kuala Lumpur, Kuala Lumpur, 1984) and in the environmental impact assessment process.
 - b. Lack of accountability practices in LA. Even though Malaysia government has done many approaches or transformations on enhancing performance and accountability, evidences show that the implementation and the achievement of those approaches are far from satisfactory. According to research done by Salleh and Khalid (2011) the LA in Malaysia continues to suffer from low level of efficiency and organisational competence. This due to suffer from inefficiency, bureaucratic red tape, corruption and many other problems.
- ii. Delay in approval planning permission. According to MHLG (2011) there are still having gaps and weaknesses in the implementation, monitoring and enforcementthere are still gaps and weaknesses in the implementation, monitoring and enforcement of the planning permission process. It can be conclude that;
 - Difference understanding and interpretation of National Land Act 1996. This situation has created a variety of procedures and practiced during the processing of applications.
 - The Development Proposal Report were not presented clearly, lack of detailed information and not easy to understand.

- Conflict jurisdiction during the technical review process between planning department and technical agencies.
- iii. Shortage and movement of staffs is the most common challenging constraint to LA. In addition, some LA replaces their leaders after less than two years in average and in some cases less than a year. This phenomenon will affect the organisation and functions of local authorities where new leaders do not serve long enough to fully implement a new strategy, reformations or change initiatives introduced (Salleh and Khalid, 2011).

Table 2.6: The Planning Permission Process within Local Authorities in Malaysia

No	Parts/ Stages	Activities
1.	Registration / open file	<ul style="list-style-type: none"> • Land Assessment • Planning Permission Report • Layout plan, landscape, contours • List of neighbouring landlords (surrounding lots) • Proposed road name
2.	Refer to planning authority and to the guidelines for planning requirements	<ul style="list-style-type: none"> • Check with local authority local plan and structure plans if any • Comply with: <ul style="list-style-type: none"> a. Act 172 (Town and Country Planning Act, 1976) b. Act 133 (Street, Drain and Building Act, 1974) c. Act 171 (Local Government Act, 1976) d. Act 56 (National Land Code, 1965)
3.	Written notice to neighbouring landlords (surrounding lots)	<ul style="list-style-type: none"> • Inform the neighbouring landlords regarding proposed new development near their lot. Section 21 act 172 (Town and Country Planning Act ,1976)
4.	Planning officer will refer to: <ol style="list-style-type: none"> 1. State Planning Department 2. National Physical Planning Council to get advice concerning this application 	<ul style="list-style-type: none"> • Check with local authority local plan and structure plans if any • Comply with: <ul style="list-style-type: none"> a. Subsection 22 (2A) Acts 172 (Town and Country Planning Act, 1976). b. Development involves area on top of hill or on hillside whether area is a sensitive environment. c. Development population exceeds 10,000 people or covered area that exceeds 100 hectares or both.
5.	Hearing	<ul style="list-style-type: none"> • Check with local authority local plan and structure plans if any • Comply with: <ul style="list-style-type: none"> a. Act 172 (Town and Country Planning Act, 1976) b. Act 133 (Street, Drain and Building Act, 1974) c. Act 171 (Local Government Act, 1976) d. Act 56 (National Land Code, 1965)
6.	Accept condition(s). Comment and coordination	<ul style="list-style-type: none"> • Prepare for comment and report
7.	Written instruction to applicant to change the plan	<ul style="list-style-type: none"> • Submit written instruction to the applicant with any change to the plan
8.	Application considered withdrawn if it does not comply with any of the written instructions within 7 days	
9.	Prepare recommendation paper to OSC Secretariat	

2.4 Knowledge Definitions

Discussion on the concept of knowledge in an organisation has become increasingly popular in the literature over many years, with knowledge being recognized as the most important resource of an organisation for many reasons: to serve customers well and to remain in business, to operate with minimum fixed assets and overheads, to improve service delivery, to empower employees, to enhance flexibility and adoption, to capture information, and to

create and share knowledge. Knowledge is classified into a variety of types. When considering knowledge management, the knowledge developer should be familiar with each type in order to tap into it during the knowledge management process. The Greek philosopher Aristotle classified knowledge into: Episteme Knowledge – abstract generalisations, the basis and essence of sciences, scientific laws and principles; Techne Knowledge – technical know-how, being able to get things done, manuals, communities of practice; Prognosis Knowledge – practical wisdom, drawn from social practice, and Metis Knowledge – which is what the flair, the knack and the bent of the successful politician is made of; a form of knowledge which is at the opposite end of metaphysics, with no quest for an ideal, but a search for a practical end; an embodied, incarnate, substantial form of knowledge.

Polanyi (1966) classified human knowledge into two categories: explicit and tacit knowledge. Explicit or codified knowledge refers to knowledge that is transmittable in a formal, systematic language. Tacit knowledge, however, has a personal quality, which makes it hard to formalise and communicate. Tacit knowledge is deeply rooted in action, commitment, and involvement in a specific context. This classification was made in a philosophical context. Nonaka and Takeuchi (1995), and Nonaka (1994), in explaining the theory of organisational knowledge creation, popularised the distinction of knowledge into the tacit and explicit dimensions. They classified knowledge as either explicit or tacit, and either individual or collective. Being able to distinguish between tacit and explicit knowledge is critical to understanding the working mechanisms of knowledge management. Explicit knowledge is codified and stored in the “organisational memory” and is available to employees throughout the structure. Conversely, tacit knowledge is personal knowledge possessed by an employee that may be difficult to express or communicate to others. It could be useful if knowledge can be distinguished between the individual level and collective level. There are researchers who argue that without an individual level there can be no collective level. Some researchers argue that the collective level exists independently of the individual level. Table 2.7 shows the various classifications of knowledge.

Table 2.7:A summary of the various classifications of knowledge

Authors	Classifications
Aristotle	Episteme knowledge, Techne knowledge, Prognosis knowledge, Metis knowledge
Machlup (1962)	Practical knowledge, Intellectual knowledge, Small-talk and pastime knowledge, Spiritual knowledge, Unwanted knowledge
Polanyi (1967)	Tacit, Explicit
Nonaka (1994)	
Pears (1972)	Knowledge of facts, Knowledge of facts' acquaintance, Knowledge of how to do things
Blackler (1995)	Embodied, Embedded, Embrained, Encultured, Encoded
Holsapple and Whinston (1988) Holsapple (1995)	Descriptive, Procedural and Reasoning knowledge
Boisot (1995)	Proprietary, Public, Personal, Common sense
Davenport et al. (1998)	Combination of information and experience, context, interpretation and reflection
Choo (1998)	Tacit, Explicit, Cultural
Conklin (1996)	Formal, Informal
Spender (1998)	Explicit, Implicit, Individual, Collective
Rulke, Zaheer and Anderson (1998)	Transactive, Resource
Awad & Ghaziri (2003)	Shallow & Deep Knowledge, Procedural Knowledge, Declarative Knowledge, Semantic Knowledge, Episodic Knowledge

(Adapted Sanghani,2009)

The concept of tacit knowledge has been affirmed by Nonaka and Takeuchi (1995), and includes both cognitive and technical elements. The cognitive elements centre on a mental model in which humans form working models of the world by creating and manipulating analogies in their minds; these include schemas, beliefs and viewpoints, which help individuals perceive and define their world. Whereas the technical elements of tacit knowledge include concrete know-how, crafts and skills, additionally, Nonaka saw a close relationship between tacit and explicit knowledge where they interchange with each other in the creative activities of human beings. Humans create knowledge through social interaction between tacit and explicit knowledge through conversation. Nonaka placed knowledge conversation into four models: socialisation, externalisation, combination and internalisation. According to Wenger et al. (2002), tacit knowledge consists of an ‘embodied experience – a deep understanding of complex, independent systems that enables dynamic responses to

context-specific problems'. Therefore, sharing this knowledge requires interaction between employees in an organisation.

Explicit knowledge is knowledge that can be found and shared easily in an organisation. Koulopoulos and Frappolo (1999) highlighted that explicit knowledge can be articulated via formal language and is easy to transmit amongst individuals in organisations. This kind of knowledge can be codified in the form of data, such as documents that contain work experience and work manuals providing procedures. Table 2.8 shows the major difference between tacit and explicit knowledge.

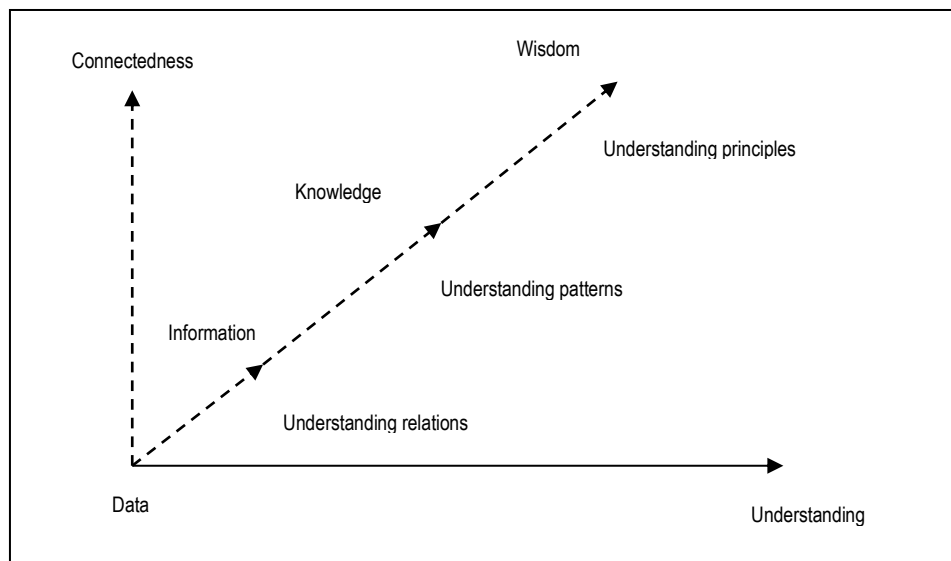
Table 2.8: The major differences between tacit and explicit knowledge

Characteristic	Tacit Knowledge	Explicit knowledge
Nature	Personal, context-specific	Can be codified and explicated
Formalisation	Difficult to formalise, record, encode or articulate	Can be codified and transmitted in a systematic and formal language
Development process	Developed through a process of trial and error encountered in practice	Developed through explication of tacit understanding and interpretation of information
Location	Stored in the heads of people	Stored in documents, databases, web pages, e-mail
Conversion processes	Convert to explicit through externalisation that is often driven by metaphors and analogy	
IT support	Hard to manage, share or support with IT	Well support by existing IT
Medium needed	Needs a rich communication medium	Can be transferred through conventional electronic channel

(Adapted from Tiwana, 2002)

2.4.1 Knowledge Hierarchy

Knowledge hierarchy describes the conventional concept of knowledge transformations. Nissen, (2000) and Davenport and Prusak (1998) conceptualise a hierarchy of knowledge, information, and data. Data is transformed into information and information transformed into knowledge. Figure 2.2 shows the transition from data, information, knowledge and wisdom each level of the hierarchy builds on the one below.



(Adapted from Bellinger *et al.*, 2004)

Figure 2-2: Transition from data, information, knowledge and wisdom

Many researchers have discussed the difference between data, information and wisdom (Ackoff; 1989, Huseman and Goodman, 1999 and Ortner, 2002). According to Ackoff (1989) the human mind can be classified into four categories:

- Data – According to Bierly *et al.* (2000) data is raw and can exist in any form, usable or not. Data does not mean much until it is processed into information, which is more meaningful. According to Huseman and Goodman (1999), data are objective facts describing an event without any judgement, perspective or context. Data become information when its creators add meaning (Davenport and Prusak, 2000). In addition data is important to organisation because it is essential raw material for creation of information.

- Information – When data is processed, organised, structured or presented in a given context so as to make it useful, it is called information. Nonaka (1994) defines information as a flow of messages and meaning. On the other hand, Wigg (1996) argues that information consists of fact and data organised to describe a particular situation or condition. Example; Average score for exam marks is the information that can be concluded from the given data.
- Knowledge – knowledge consists of truths and beliefs, perspectives and concepts, judgements and expectations, methodologies and know-how. Bhatt (2000) defines knowledge depends on users' perspective. Marakas (1999) knowledge is context dependent, since 'meanings' are interpreted in references to a particular paradigm. Bouthillier and Shearer (2002) added knowledge is predictive and can be used to guide action. McDermont (1999) listed six characteristics of knowledge that distinguish it from information;
 - i. Knowledge is a human act
 - ii. Knowledge is the residue of thinking
 - iii. Knowledge is created in the present moment
 - iv. Knowledge belongs to communities
 - v. Knowledge circulates through communities in many ways
 - vi. New knowledge is created at the boundaries of old

Hence, knowledge has no value until it is applied and when new knowledge is applied, it introduces a change into the environment, which generates a value.

- Wisdom – According to Manaf and Marzuki (2009) wisdom is the ability to make the best use of knowledge. Davenport and Prusak (1998b) defines wisdom as it illustrates the ability to choose effectively and to apply the appropriate knowledge in a given situation.

2.4.2 Type of Knowledge

Knowledge is 'power' for both the organisation and for individual employees, with the ability to confer competitive advantage on the possessor. Knowledge can also be seen as a 'bargaining power' for workers, most especially knowledge workers. Knowledge is

increasingly becoming a key asset for organisations. Often, knowledge workers "hoard" their knowledge with the intention of maintaining their competitive advantage, enhancing their status and retaining their employment within the organisation. The question of what is knowledge has to be answered because knowledge is viewed as a diverse concept consisting of many interrelated concepts. Although there is little agreement on a universal classification concerning the types of knowledge, there is wide consensus that knowledge is part of a progression, moving from data to information and then on into knowledge (Despres and Chauvel, 2002).

A comprehensive review of the various classifications of knowledge may be found in Blackler (1995) and Venzin *et al.* (1998). Davenport and Prusak (1998) defined knowledge as a 'fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluation and incorporating new experiences and information. It originates and is applied in the minds of 'knowers'. In organisations, it often becomes embedded not only in documents or repositories but also in organisational routines, processes, practices, and norms'. Blackler (1995) identified five different categories of knowledge:

1. Embrained knowledge – knowledge in conceptual skills and abilities
2. Embodied knowledge – knowledge that is inextricably linked to physical skills
3. Encultured knowledge – knowledge as shared through socialisation
4. Embedded knowledge – organisational routines
5. Encoded knowledge – knowledge stored in documents such as signs and symbols

Rennie (1999) also defined knowledge from six different perspectives:

1. Know-why – scientific knowledge of the principles and laws of nature
2. Know-how – skills or capability
3. Know-where – ability for finding the right information
4. Know-what – accumulation of facts
5. Know-when – sense of timing
6. Know-who – information about who knows what

However, knowledge always originates from an individual's brain and information is interpreted by the individual and applied to the purpose for which it is needed. In this research knowledge can be divided mainly in two categories, i.e., tacit and explicit knowledge (refer to section 2.4)

2.4.3 Knowledge Management

Knowledge management is known as the process of managing organisational knowledge. Scarbrough *et al.* (1999) define knowledge management as any process of creating, acquiring, capturing, sharing and using knowledge, wherever it resides, to enhance learning and performance in organisations. These processes lead to the establishment of a knowledge-based organisation. In order to establish a knowledge-based organisation there needs to be a supportive organisational culture. It has been argued that the cultivation of a 'learning organisation' is an essential requirement for knowledge managers (Senge, 1990). Further theories about organisational culture favour the evolution of a 'community of practice' where social interaction of employees cultivates a knowledge sharing culture based on shared interests, thus encouraging idea generation and innovation (Egbu *et al.* 2001). Successful knowledge management could overcome learning barriers through instilling a learning and knowledge sharing environment, providing vision and effective leadership and initiating knowledge sharing reward systems (Egbu *et al.*, 2001).

Knowledge management is about getting the right knowledge to the right people at the right time. It is about sharing and acquiring knowledge in ways that can be translated into improved organisational performance. The intellectual capital of individuals and teams are presented in a tangible form facilitates the adding of value to the organisation.

The goals of KM are the leveraging and improvement of the organization's knowledge assets to effectuate better knowledge practices, improved organizational behaviors, better decisions and improved organizational performance (King, 2009). Each individual can personally take part in the KM process. However KM is largely an organisational activity that focuses on what managers can do to enable KM's goals to be achieved, how they can motivate individuals to participate in achieving them and how they can create social processes that will facilitate KM success.

2.5 Knowledge Sharing

Knowledge sharing is described throughout the literature by numerous different terms from varying perspectives and contexts that are specific to each author. Knowledge sharing is a process to share experience, expertise, values, contextual information and insights for the purpose of creating frameworks for evaluating and incorporating new experiences and information (Kim and Lee, 2005), a team process and members sharing task-relevant ideas (Srivastava *et al.*, 2003), a process where individuals exchange and create new knowledge (Hooff *et al.*, 2003) and as a communication of all types of knowledge (Al-Haeamdeh, 2003). These definitions mean that it is a process in which knowledge held by an individual is converted into a form that can be understood and used by other individuals and that this knowledge is used to support the business process within an organisation. Knowledge in an organisation can occur at various levels, such as at the individual, group, and organisational or inter-organisational level. Usually, knowledge is shared in an organisation or a department through transformation or interaction between employees within its environment together with creating, using and distributing knowledge with an understanding of their work. Therefore, knowledge in an organisation is crucial in order to develop a dynamic organisation. For the purpose of this research, knowledge sharing is a process in which individuals, groups or departments in LAM exchange or shares their knowledge (either tacit and/or explicit), and, together, they create new knowledge and share an understanding of their work throughout the whole department.

Moreover, knowledge sharing is widely regarded as vital for organisational innovation and as a natural social phenomenon. Unmanaged knowledge sharing processes are local and fragmentary (Davenport and Prusak, 1999). Organisations are social communities that use their structure to enhance the transfer and communication of new skills and capabilities. Organisations cannot create knowledge without individuals unless they share it with others in the organisation. Moreover, knowledge in an organisation, especially tacit knowledge, is difficult to transfer and transform into a comprehensible code that can travel across the organisation. For this reason, it can be argued that it is important to systematically foster knowledge sharing among organisation members. Nonaka (1994) defined employees as the main drivers of sharing of knowledge and information in an organisation. Good relationships

between co-workers (Hensen *et al.*, 2005) are one of the factors that improve knowledge sharing in an organisation.

2.5.1 Importance of Knowledge Sharing

Understanding knowledge sharing within organisations is a serious concern for the organisations of today, especially in LAM. Usually, knowledge is shared in the LAM through the process of the transformation of team members understanding of their work. As knowledge is a central resource of LAM, effective knowledge sharing is a significant public management challenge in endeavouring to provide excellence in delivering a public service. Improved knowledge management is essential to LAM at the national, regional and local levels, because these organisations are basically knowledge-based organisations. Knowledge-sharing capabilities are considered as key to the success of a LAM to meet the needs and demands of the constituencies at all levels of government. However, knowledge sharing is considered as one of the most challenging processes for an organisation due to employees' possible reluctance to share what they know. This is because, at the same time, employees realise that knowledge is power, and, consequently, this factor is likely to lead to knowledge hoarding instead of knowledge sharing (Gupta & Govindarajan, 2000). In the same vein, organisational culture (McDermott & O'Dell, 2001; Al-Alawi *et al.*, 2007), the motivation for sharing (Kalling, 2003), organisational structure (Claver-Cortes *et al.*, 2007), the ability of the source to share (Foss and Pedersen, 2002), and the ability of the recipient to accept knowledge are considered to play a vital role in knowledge sharing.

The creation of knowledge sharing capabilities in LAM requires the dissemination of individual employees' work-related experiences and collaboration between individuals and between subsystems within the organisation. Information technology is another dimension that helps organisations in leveraging knowledge. For instance technology can provide a platform in developing and gaining knowledge and in sharing knowledge (Syed-Ikhsan and Rowland, 2004) and can act as a knowledge transfer process (Salleh *et al.*, 2009). These viewpoints are in line with the findings by McDermott and Archibald (2010) who found that the application of a technology system network could help organisations connect with their employees independently and unofficially. There is no doubt that technologies are needed to

enable the KM process and as the mechanism for managing knowledge (Alavi and Leidner, 2001). Although some researchers agree that technology is a key driver of knowledge management in their particular research contexts, others disagree with this view and believe that KM is about people. Individuals are key players in the knowledge sharing process. Successful knowledge sharing depends on the ability of the knowledge seeker to be able to understand the knowledge they receive and absorb. Absorptive capacity is a concept whereby the capabilities of knowledge seeker absorb the knowledge they receive through the knowledge sharing process. Absorptive capacity can be defined as the ability to evaluate, assimilate, transform and apply the potentiality of the knowledge by the receiver (Zahra and George, 2002). In reality, social interaction between employees in an organisation and the process of knowledge sharing occurs when people who share a common purpose and experience a similar problem come together to exchange an idea or information for the benefit of the organisation of themselves and the organisation. The main problem that occurs in looking at the process of sharing knowledge is how to explore the social relationship through which knowledge is shared (Parise, 2007) and how to explore the needs of organisations to personalise strategies so that members of an organisation can interact and facilitate the sharing of knowledge.

From the planning permission process perspective, knowledge sharing phenomena can be better analysed by shedding light on the focuses that influence employees' willingness to engage in systematic knowledge sharing activities for the organisation's benefit. Employees have often sought to cover their lack of knowledge by asking their colleagues, by getting advice from experienced colleagues or by receiving supervision from their mentor or from their superiors. In this context, sharing knowledge is about providing the right knowledge to the right person at the right time. This can be done through two basic ways in order to enhance the process of knowledge sharing in LAM. The use of technology and techniques can enable the effective sharing of knowledge and can also enhance the implementation of the sub-processes of KM in an organisation. Further discussion on this topic will take place in chapter 4.

2.5.2 Knowledge Sharing within Government Services in Malaysia

Since the announcement unveiling Vision 2020, the concept of a knowledge economy has been prominent across Malaysia. Knowledge management, however, only really began to have an impact at the turn of the century. Knowledge management is also creeping up the government agenda, affecting both the government's vision for the country as a whole and the way ministerial departments operate on a day-to-day basis. The K-based Economy Master Plan (KEMP), introduced at the end of 2002, proved that the government is very serious in transforming Malaysia from an agricultural and industrial economy to a knowledge-based economy (K-economy). The development of the multi-media super corridor (MSC) and the National IT Agenda (NITA) are some of the initiatives undertaken to facilitate the smooth development of a K-economy. Recently, the number of research disciplines that relate to knowledge management has grown, especially in the Malaysian public sector. Table 2.9 below provides a list of the research in knowledge management that has been undertaken in recent years in the context of the Malaysian public sector.

Table 2.9: Research undertaken on knowledge management in the context of the Malaysia Public sector

Title	Agencies	Year	Authors
Benchmarking Knowledge Management in a Public Organisation in Malaysia	Ministry of Entrepreneur Development	2004	Syed-Ikhsan and Rowland
Knowledge Management in a Public Organisation: A Study on the Relationship between Organisational Elements and The Performance of Knowledge Transfer	Ministry of Entrepreneur Development	2004	Syed-Ikhsan and Rowland
The Implementation of a Knowledge Management Strategy in Malaysian Local Authorities for Urban Management	Local Authorities	2006	Razali and Manaf
KM in Local Authorities – A Suitable Platform for E-Government?	Local Authorities	2006	Salleh and Syed Ahmad
Knowledge Management in Electronic Government: The Organisational Readiness of Local Authorities in Malaysia	Local Authorities	2009	Salleh <i>et al.</i>
Is There a Relationship Between Knowledge Sharing Practice and the Quality of Service Delivery?	Malaysian Public Sector	2009	Yusof and Ismail
Managing Knowledge Practice in Malaysia's E-Government Implementation	Malaysian Public Sector	2009	Mohamed

Consequently, from the above, it can be seen that the government of Malaysia is serious about implementing, and focusing on knowledge management in the Malaysian public sector.

2.6 Process Improvement Initiatives in General

Local authorities have faced implementing continual administrative reforms to enhance its accountability and efficiency. As a front-line agency in policy and program implementation, local authorities are very important departments in connecting the Government and the people at the grass-roots level. The issues of accountability and efficiency at local authorities have frequently been addressed by politicians and public, especially in the context of planning permission process. In order to enhance accountability, efficiency and service delivery, Malaysia government through MHLG has taken some efforts initiatives;

- Malaysian Public Information systems – ICT projects have been implemented to serve the needs of the Malaysian electronic governance. The objectives are to i) transform the administration process of government by using leading edge IT, ii) to drastically improve the performance of government process, iii) to employ multimedia technology to foster government effectiveness. According to Karim (1997), e-government is a multimedia networked paperless administration linking the government agencies within the new federal administrative centre located at Putrajaya and the government centres around the country. In 2008, 144 local authorities have provided online services such as e-submission (submission and approval of applications within the development plan), Geographical Information System (GIS) and e-complain procedure (Rashid *et al.*, 2008).
- Preparation of Development Proposal Report –In 2001, under the provision of section 21A of the Town and Country Planning Act 1976 [Act 172] (Amendment Act 2001) requires the development proposal report (LCP) submitted with the application for planning permission.

This report shall be prepared by the planning consultant prior to application for planning permission and should include;

- i. Justification and concept of development,
- ii. A location map and a site plan,
- iii. The details of land ownership and restrictions, if any,
 - A description of the land including terms topography, landscape, geology, contours, drainage, water catchments and nature thereon,
 - A survey of all kinds of trees and plants, and
 - The details of the building, which may be affected by development.
- iv. Analysis of land use and its impact on the adjoining land,
- v. The layout plan containing details specified in section 21B,
- vi. Any other matter prescribed by the planning department.

The main objective of this report is to speed up the review process applications for planning permission by the local authority and other technical agencies.

- One Stop Center – This has been implemented since January 2004 with the aims to facilitate the process of planning permission. This department will act to coordinate, control and monitor the planning permission process application from the applicant to the land office, planning department and technical agencies to avoid duplication of cases during the technical review process. Several amendments have been made to improve the One Stop Center.
 - i. In 2007, MHLG have agreed to expand One Stop Center role, include the approval of planning permission, building plans and make recommendations for land development approval. With this expansion, the time for land development application process as a whole was reduced thereby enhancing the delivery

of services towards realising comprehensive, fast and accurate and meet the needs of the public (MHLG, 2007b).

- ii. In 2008, MHLG make an improvement by delegating some power from the state authorities to local authorities. This delegation of power will expedited the process of planning permission. This was a sensible decision as the Las are the authorities that have more knowledge about the planning requirements in their respective areas (MHLG, 2008).
- iii. In 2009, MHLG has launched detail document checklist for local authorities and technical agencies. The main objectives are (MHLG, 2009):
 - a. To coordinate and standardise the application for planning permissions (including local department in local authorities and technical agencies.)
 - b. To improve the transparency and full disclosure so that the applicant can provide development proposals in accordance with the requirements established by local authorities and technical agencies.

2.7 Knowledge sharing initiatives (KSI)

Many researchers defined knowledge sharing initiatives within their context. According to Salim *et al.*, (2005) stated that knowledge sharing initiatives are programmes that create the environment and provide the support to enhance and emphasise a variety of aspects that will make it efficient and effective by enhancing knowledge creation and innovation. Bishop *et al.*, (2008) define knowledge sharing initiatives as an organisation's approach to managing its knowledge that includes both human (soft) and system (hard) components. While Al Nawakdaet *al.* (2008) identified knowledge management initiatives as the ambitious programme that enhances knowledge management. According to Sveiby (2001) knowledge sharing initiatives are an organisational approach to how companies create value from their intangible assets while Bhirud *et al.*, (2005) defined knowledge sharing initiatives as the

events or mechanisms for the purpose of formalisation and sharing best practices and experiences within the organisation. However (Al-Ghassani et al., in Anumba *et al.* 2005; Egbu and Botterill, 2002) highlighted that knowledge-sharing initiatives are the tools that are divided into techniques and technologies. Techniques are affordable to most organisations and easy to implement and maintain as they incorporate features that are relatively simple and straight forward to understand where as technologies consist of a combination of hardware and software. For this research, the definition of knowledge sharing initiatives by Bishop *et al.* (2008) is used.

2.8 Nature of Knowledge Sharing Tools and Techniques

The term of knowledge management tools or knowledge sharing tools are sometimes used narrowly to mean information technology (IT) tools (Anumba *et al.*, 2005). According to Gallupe (2001) in Anumba *et al.*, (2005) stated that information technology (IT) tools are not simply information management tools as they should be capable of handling the richness, the content, and the context of the information and not just the information itself. According to Anumba *et al.*, (2005) mentioned that a popular definition by Ruggles (1997) explained that information technology (IT) tools as the technologies used to enhance and enable the implementation of the sub-processes of knowledge sharing. Ruggles (1997) in Anumba *et al.*, (2005) disagreed that not all knowledge management/knowledge sharing tools are IT based as a paper, pen or video can also be utilised to support KM/KS. Hence to differentiate between knowledge sharing tools, the terms ‘KS techniques’ and ‘KS technologies’ are used to represent ‘non-IT tools’ and ‘IT tools’ respectively. Knowledge sharing technologies depend heavily on IT while knowledge sharing techniques are tools that do not require technology to support them and exist in several forms, affordable to most organisations, no sophisticated infrastructure needed (although some techniques require more resources, e.g. training require more resources) and also easy to implement and maintain, simple and relatively easy to understand (Al-Ghassani et al. in Anumba *et al.*, 2005).

Egbu and Botterill (2002) in Mohd Nor (2013) listed for techniques are as follows: document and reports; face to face meetings; interaction with supply chain; formal on the job training; formal education and training; work manuals; informal networks; brainstorming session;

project summaries; coaching and mentoring; bulletin boards; cross functional teamwork; help desk; job rotation; communities of Practice; story telling; quality circles. Whilst for technologies are: telephone; internet/intranet; IT based database; knowledge base expert system; decision support systems; knowledge maps; groupware; and video conferencing. Furthermore Al-Ghassani et al. in Anumba *et al.*, (2005) in Mohd Nor (2013) have listed for techniques are: brainstorming; communities of practice (CoPs); face to face interaction; post-project reviews; recruitment; apprenticeship; mentoring and training while for technologies are: hardware technologies; software technologies; data and text mining; groupware; intranet/extranet; knowledge bases; taxonomy and ontology as a content/knowledge map to improve the compilation and real time navigation of web pages.

According to Hedgebeth (2007), there are successes stories whereby governments have improved their performance by using knowledge sharing technology. Hedgebeth (2007) added that organizations must be prepared to use their technical staff and/ or hire consultants who can integrate and customise knowledge sharing applications to suit the needs of the required environments. Furthermore, KM and KS products offering by Salesforce.com, BMC Software, DCASoft and Atlassian are examples of available tools that can assist business groups, governments, educational institutions and other entities to achieve organizational goals and objectives (Hedgebeth, 2007). Proper KM/KS planning is very important especially the alignment of an organisational activities and strategic objectives must always take place before technology solutions are considered (Hedgebeth, 2007). Karkoulia *et al.*, (2008) found that informal mentoring is highly related to knowledge sharing techniques whereby the more people practice mentoring the more knowledge will be shared and used within the organisation but there was little support for formal mentoring. Long (2002) has dissimilar view to Karkoulia *et al.*, (2008) revealed that mentoring is one of the non IT tools that share the experience and the investment of time and caring in helping to develop future leader's growth, knowledge and skills.

2.9 Critical Success Factors for Knowledge Sharing

A broad range of factors can influence the success of knowledge sharing practices. Some researchers mentioned that leadership; resources, information technology (IT) and culture are

important considerations for its accomplishment. With the importance of knowledge sharing being realised, businesses are viewing knowledge sharing as a critical success factor in today's dynamic borderless society. Making knowledge available to the right people at the right time is crucial for building and sustaining organisational competencies. Organisations are becoming more knowledge intensive; they are hiring "minds" more than "hands", and the need for leveraging the value of knowledge is increasing. As a result, knowledge has been treated systematically much like other tangible resources. Many organisations are exploring the field of knowledge management in order to improve and sustain their competitiveness. The need for a more systematic and deliberate study on the CSFs for implementing knowledge sharing is crucial. Organisations need to be cognisant and aware of the factors that will influence the success of a knowledge sharing initiative. The benefits of identifying CSFs are that they are simple to understand; they help to focus attention on major concerns; they are easy to monitor; and they can be used in connection with strategic planning methodologies. Using CSFs as isolated factors does not represent critical strategic thinking and they should be used in conjunction with a planning process, it is extremely important to identify CSFs because it keeps people focused. The identification of CSFs will enable the limited resources of time, manpower and money to be allocated appropriately (Chua *et al.*, 1999). Therefore, organisations need to be aware of the critical factors that will influence the success of knowledge sharing initiatives. Ignorance and oversight of the necessary important factors will likely hinder an organisation's efforts to realise its full potential. The critical success factors in knowledge sharing can be viewed as those activities and practices that should be addressed in order to ensure their successful implementation. These practices would either need to be nurtured if they already exist or be developed if they were still not in place. No systematic work exists on characterising a collective set of CSFs for implementing KS in an organisation. An appropriate set of CSFs, which are relevant for an organisation, will help them keep in mind the important issues that should be dealt with when designing and implementing a knowledge sharing initiative. Based on the above definition, CSFs in this study are treated as those internal factors that are controllable by an organisation. External factors, such as environmental influences are not taken into account since organisations have little control over them when implementing knowledge sharing. Based on the literature, Al Alavi *et al.* (2007) highlighted that there are five key success factors for knowledge sharing. Trust; communication; information systems; rewards and organisation structure. McDermott and O'Dell (2001) mentioned that to overcome the organisational culture is the critical success factor for knowledge sharing. McDermott and O'Dell (2001) suggested that to

implement knowledge sharing, organisation have to find the knowledge sharing networks that already exist and build on the energy that already exists within the organisation. Another critical success factors for knowledge sharing is competence-based trust (Levin *et al.*, 2002).

Competence-based trust describes a relationship in which an individual believes that another person is knowledgeable about a given subject area. According to Xiong and Deng (2008) explored the impact of culture on knowledge sharing in Chinese joint ventures. Xiong and Deng (2008) mentioned that the results have shown that effective communication, shared mindsets, training and leadership are the critical success factors for effective knowledge sharing in Chinese joint ventures. However according to Hung and Chuang (2009) highlighted that there are ten factors that affected the successful of knowledge sharing behaviours identified based on the study of Kankanhalli *et al.*, (2005) are trust, reciprocity, pro sharing norms, identification, image, organizational rewards, knowledge self-efficacy, enjoyment in helping others, codification effort and loss of knowledge power.

2.10 Organisational Structure, Culture and Motivation that are Important for KSI

2.10.1 Organisational Structure

Organisational structure was found to influence knowledge sharing (Mohd Nor, 2013). The definition of organisational structure as: “*all complex organisations are built up from units of organisation, and consist of many units of working or basic organisations, overlaid with units of executive organisations...*” (Chester Barnard, in Tolbert and Hall, 2009). Furthermore Tolbert and Hall (2009) revealed that the formal structure refers to the official, explicit division of responsibilities, definitions of how work is to be done, and specifications of relationships involving the members of an organisation. Informal structure refers to the unofficial divisions, definitions, and relations that emerge overtime in an organisation. Gold *et al.*, (2001) stated that a flexible structure could be advantageous to sharing. However, Egbu (2000) highlighted that centralisation, complexity, stratification and formalisation are influenced knowledge sharing.

2.10.1.1 Centralisation

Centralisation refers to the extent to which authority and decision-making is concentrated at the top of an organisation. A high level of centralisation appears to restrict channels of communication, inhibit employees' capacity to generate ideas and share knowledge and expertise with others, therefore, arguably stifling an organisation's capacity for improved knowledge sharing. Consequently, decentralisation is preferred in improving knowledge sharing. Fostering learning and sharing of good practices involves cultivating an environment where employees can exchange knowledge freely, and where structures are flexible and decentralised.

2.10.1.2 Complexity

Complexity is a measure of the number of occupational and task differentiation in teams and organisation. High occupational specialisation and task differentiation appears not to be effective in promoting employees' knowledge sharing activities. However, cross-functional lines and integrating key knowledge sources for improved knowledge sharing requires a supportive organisational culture, which fosters collective harmony. It is this challenge that construction organisations need to address through such measures as recruiting employees who are willing to share their knowledge, appraising their knowledge sharing activities, rewarding them appropriately and training employees on how to share their knowledge.

2.10.1.3 Stratification

Stratification refers to the number of layers or levels of organisational hierarchy. Flatter structures emphasise the horizontal links between parts of organisations enabling liaisons and partnerships across disciplines and departments. It would seem that flatter structures help to reduce the barriers between managers and staff and allow clearer and rapid decision-making.

2.10.1.4 Formalisation

Formalisation involves organisational control over the individuals (Clegg and Dunkerley, 1980), and, thus, has ethical and political implications, in addition to implications involving the efficiency and effectiveness of organisations (Tolbert and Hall, 2009). It was noted that the usage of these rules and procedures have spread and come to be seen as almost mandatory within the organisation. Therefore, it could be argued that sharing knowledge of new ideas, especially innovative ideas, has been constrained as consideration of new tools, concepts and ways of working tends to be precluded.

2.10.2 Organisational Culture

Organisational culture is multi-dimensional and it has also been cited as the main reason for people's reluctance to share knowledge (Davenport and Prusak, 1998). Cameron and Quinn (2006) in Suppiah and Sandhu (2010) argued that taken-for-granted values, underlying assumptions, expectations and definitions already in existence contributed to the reason for ignoring organisational culture as an important factor. Many researchers and practitioners are interested to explore about the organisational performance that been mentioned as intertwined to certain organisational culture (Schein, 2004; McDermott and O'Dell, 2001). Organisational behaviour is determined more by its culture than directives from senior management and the implementation of strategies in many organisations is affected if they are at odds with the organisation's culture (Jarnagin and Slocum, 2007 in Suppiah and Sandhu, 2010).

Nonaka and Takeuchi (1995) regard culture to be the beliefs, values, norms and behaviours that are unique to an organisation. One of the major challenges besetting KM is the creation of a culture favourable to knowledge sharing (Ardichvili et al., 2003). For knowledge sharing, according to Al-Alawi *et al.*, (2007), communication, information systems/technology, rewards and organisational structure are positively related to each other. Prior research on the relationship between organisational culture and business performance (Deshpande and Farley, 1999) is limited in scope in that it has not taken into account how

organisations improve knowledge sharing. Egbuet *al.*, (2002) identified the major cultural variables that influence knowledge sharing as below:

- Attitude of senior manager to open discussions with employees
- Extent to which creativity and dynamism is encouraged
- General level of commitment amongst the workforce
- The conducive nature of the immediate working environment
- Level of importance the organisation places on employee's 'results'
- Degree to which teamwork, participation and consensus is encouraged
- Degree to which risk taking and experimentation is encouraged
- Level of importance on measurable goals and targets
- Level of 'formality' inherent in work accomplishment within the organisation.

For this research, the definition of organisational culture by Hofstede has been used. Hofstede revealed that organisational culture is rooted in practices and that, to some extent, it is manageable. Kluckhohn (1951), in Hofstede (2001), refines the definition of culture as: *Culture consists in patterned ways of thinking, feeling and reacting, acquired and transmitted mainly by symbols, constituting the distinctive achievements of human groups, including their embodiments in artefacts; the essential core of culture consists of traditions (i.e., historically derived and selected) ideas and especially their attached values.* (p. 9)

2.10.3 Motivation

Organisational management has to responsible for the welfare and effectiveness of their employees coupled with ensuring an excellent service to their customers (Hasenfeld, 1983). Employees need to be motivated to increase productivity. Prior literature has proven that the ability to understand what employees want and their individual various needs is the first step in designing a strategy to engage them to create a hospital experience that results are not just in great outcomes, but in a positive patient experience (Stanowski (2009) in Oladotun and Öztüren (2013). Oosthuizen (2001) stated that improved productivity is driven by positively motivated employees by the organisation. Awareness by the organisation of the motivating factors and factors leading to increased job satisfaction allow the implementation of targeted

strategies of continuous improvement (Unterweger *et al.*, 2007). However according to Bolman and Deal (2008) when workers are dissatisfied with their work they withdraw and exhibit behaviours such as absenteeism, rebellion and a negative attitude that affect their performance which leads to loss of productivity and effectiveness in the organisation but if they are satisfied with their jobs they effectively utilise their skills and the organisation benefits. Bearing this in mind one can see that satisfaction at job is important to both the workers and organisation.

Four of the most prominent content theories of work motivation are Maslow's Hierarchy of Needs theory, Alderfer's Existence Relatedness Growth Needs (ERG) theory, Herzberg's Motivator – Hygiene model as it is more commonly referred to as the Two- Factor theory and McClelland's Achievement Motivation theory.

Herzberg's Motivation-Hygiene theory was used as the framework for this study. Herzberg (1996; 2003) had two sets of factors that influenced job satisfaction and job dissatisfaction of employees at work. The hygiene factors: the hygiene, seen as the maintenance factors in the organisation is also relevant though their satisfaction does not necessarily motivate the employees. Additionally, their absence in the organisation creates dissatisfaction, which impacts a negative impactfor organisation (Nelson and Quick 2003).

The motivational factors: the motivators are the job content factors, while their presence produce positive feelings and they serve as the organisational supports, which is significant for productivity and profit in the organisation. The motivators are known to increase satisfaction within the organisation (Hong, 2011). They are intrinsic of the job, with in-depth awareness of the job content. These factors include recognition, personal growth, achievement, work itself and promotion. Their presence produces and increases positive feelings among the employees since they serve as motivation pillars in the organization. They are factors that increase satisfaction and morale (Hong, 2011), and they help focus on the job itself by providing opportunities for the gratification of higher growth needs.

2.11 The Contribution of Organisational Resources

According to Hitt *et al.*, (1999) organisational resources are an important bundle of intangible resources that can be the source of a sustainable competitive advantage. According to Amit and Schoemaker (1993), 'resources are stocks of available factors that are owned or controlled by the firm'. Organisational resources are tangible resources, namely human, physical, organisational and financial and intangible resources namely reputational, regulatory, positional, functional, social, and cultural. Human resources and intangible resources are deemed to be the more important and critical ones in attaining and sustaining a competitive advantage position because of their natures, which are not only valuable but also hard-to-copy relative to the other types of tangible resources (namely physical and financial). In short, conceptually and empirically, resources are the foundation for attaining and sustaining competitive advantage and eventually superior organisational performance.

2.12 Summary

In organisational resources, knowledge requires management because it is a form of intangible asset for any organisation, which, in the context of the planning permission process, includes multi-tasking processes, working within the limitation of time, involving rules and regulations and requiring decision-making to control the development process within the area of the local authority. Moreover, it requires support from government policies, government circulations, programmes and agendas. It is impossible to talk about knowledge without addressing the importance of people in organisations; their commitment, efforts and encouragement are crucial to the success of the government's agenda. A systematic approach to knowledge sharing should be implemented to enhance a successful process of sharing knowledge in organisations, especially in the planning permission process. In fact, the 'people aspect' of knowledge is paramount to successful knowledge sharing and it includes the relationships between co-workers and their capabilities for absorptive capacity. Furthermore, knowledge that resides in organisations, especially tacit knowledge that resides within employees, is a most important resource.

From the discussions drawn throughout the chapter, the following conclusions can be made:

- Knowledge sharing has been identified as a major focus area for KM.
- Knowledge sharing is the act between at least two parties, one who possesses knowledge and the other who acquires knowledge.
- Knowledge sharing and learning behaviour could contribute to better performance and an improvement in government sector.
- Critical success factors, organisational structure, organisational culture and motivation are important factors for knowledge sharing.

It is important for LAM especially Planning Permission Process to implement knowledge sharing initiatives that can manage knowledge regardless of whether it is tacit or explicit knowledge. This will provide benefit to the performance of the organisation.

CHAPTER 3. RESEARCH METHODOLOGY

3.1 Introduction

The aim of this chapter is to outline the research methodology and research design adopted to explore the research aim and objectives for this study. Rigorous investigation of organisational processes, human behaviour, culture, documentation and employees' needs, interpretations and preferences is a complex task, which requires systematic approaches in data collection and analysis if meaningful results are to be achieved. This chapter is divided into two parts. The first part of this chapter outlines the research ethics and how the data was protected, and the second part of the chapter describes the way in which the aforementioned methods have been used for the study.

3.2 Research Ethics

As this research was carried out, certain ethical concerns were raised and the researcher adequately addressed these concerns. This research has followed the ethical guidelines given by the University of Salford and several amendments were made during the period from 1 January 2010 to 27 May 2010 when the researcher received approval from the University of Salford Ethical Panel to progress his research. Some of these concerns and how the researcher approached them are discussed below.

3.2.1 Informed Consent

Potential participants in the research were requested to read and sign the Participant Consent Form (attached) if they agreed to become a participant. They were free not to answer any of the questions and could completely withdraw at any stage of the interview or the survey without being bound to give any reason. Potential participants and/or participants were free to express any ideas or to ask any question/s (if necessary) during the interview/survey. The principle of well-informed consent was employed and all the participants in this study

received a clear picture of the subject's purpose, as well as their role and position in it, before participating.

The following methods were used to collect data and were strictly based on the ethical approval and research participant consent:

- Using an audio tape recorder (during the semi-structured interviews)
- Using e-mail to respective participants (during the questionnaire survey)

3.2.2 Data Protection and the Right to Privacy

During the data collection research participants were provided with a research code known only to the researcher to ensure that the participant's identity remains anonymous and confidential. The data interviews and questionnaires were coded for the purpose of anonymity. The data collected will not be disclosed to any other party for any reason and will only be used for the purposes of this research including publications and presentation. All publications and presentations of data will be presented in a way so as to disguise the identity of the research participant involved unless consent is given. The data collected will be treated with strict confidentiality. A 'confidentiality statement' was signed by both the interviewer and the interviewee. The hard copy of the data is stored in a locked filing cabinet within a locked room, accessed only by the researcher.

If any data has been obtained from a withdrawn participant, it will not be counted or used as part of the study. Consideration will be given to destroying any data taken from participants who withdraw from the study unless they give consent for data collected up to the point of withdrawal to be used. The participants will be allowed to express their opinions on any relevant issues as all data and information will be treated as confidential and anonymous.

The researcher will not be biased to any view, ideas or contributions from any of the participants and will ensure that the participants are not at risk at all by virtue of their contribution to this study. Such risk, should it be identified, could be directed towards their

jobs, or the confidential status of government documents, etc. Most importantly, anonymity was granted to any participating individual or organisation that desired it, and the sources of results and data were kept in strictest confidence, without compromise. Also, the results and conclusions of this study will be open and available to all contributors, participants and the Malaysian local authorities without bias.

3.2.3 Professionalism

For this study, the researcher did not allow any personal interest to interfere. All findings were reported with the utmost professional honesty. In addition, full credit was given appropriately where deserved in the acknowledgement section of the thesis.

3.3 Research Methodology

Research methodology refers to the paradigm, method or approach or the strategies that have been adopted to gather data in order to answer the research question and to meet the research objectives. Methodologies produce different research designs because their theoretical structure follows different ontological and epistemological prescriptions (Sarantakos, 2005). The ontological and epistemological influences on methodology are shown in Figure 3.1 below.

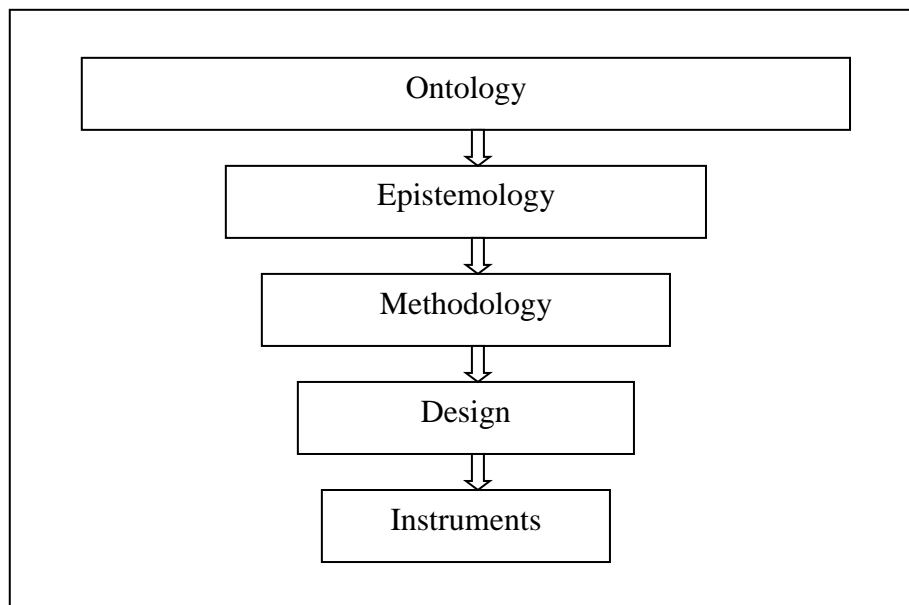


Figure 3-1: The foundation of research (Sarantakos, 2005)

According to Ghauri and Grønhaug (2005) formulating and clarifying the research topic is the starting point of a research project. Once the research topic has been decided it is possible to choose the appropriate research strategy and data collection and analysis techniques. In other words, the term ‘methodology’ tends to be used to describe the paradigm, strategies or methods selected for gathering data in order to answer the research questions and meet the research objectives.

All research methods are closely connected to the research philosophy and to the different ways in which new knowledge is created through research. Sarantakos (2005) noted that the ontological, epistemological and methodological prescriptions of social research are packaged in paradigms that guide every day research, as shown in Table 3.1. It is possible to do research without much knowledge of the basic concepts that concern the various ways of doing research in the philosophy of social sciences. With that in mind, it is important to present an overview of the research process in order to give an understanding of the research methodology of this research and a justification for adopting any such methodology.

Table 3.1: Paradigms: theoretical construction of research

	Positivism	Symbolic Interactionism; Phenomenology; Feminism; etc.
Ontology	Realism/Objectivism	Constructionism
Epistemology	Empiricism	Interpretivism
Methodology	Quantitative	Qualitative
Research	Fixed Design	Fixed/Flexible design

(Adapted from Sarantakos, 2005)

Saunders *et al.* (2007) noted that a research philosophy contains important assumptions about the way in which we view the world. Additionally, these assumptions underpin research strategies and the research method will have been chosen as part of the strategy.

Ontology: According to Sexton, (2008) ontology is an assumption that the researcher makes about the nature of reality. It is a study of conceptions of reality and the nature of being. It seeks to describe or posit the basic categories and relationships of being or existence to define entities and types of entities within its framework. Same views from Creswell (2003), ontology are based on the nature of reality. Again Sexton (2004) in his model of research approaches a continuum, which shows that ontology can fall under the realism or idealism of research knowledge.

Epistemology: Epistemology is about how the world has been viewed in reality. It is a general set of assumptions about how we acquire and accept knowledge about the world (Sexton, 2008). Based on the epistemological stance, positivism advocates the application of methods of natural science to the study of (social) reality and beyond, as the ‘truth’ is out there to be discovered. Conversely interpretivism is an epistemological position that separates objects of natural science from the (social) actors, as the researcher/observers, who somehow construct their own ‘truth’ in viewing the world (Sutrisna, 2007). According to Creswell (2003), epistemology is how we gain knowledge of what we know.

Axiology: The axiological purpose is an assumption about the nature of values and the foundation of value judgments (Sexton, 2008). Axiology is also known as philosophical fields that depend crucially on notions of value, and sometimes are held to lay the groundwork for these fields. The nature of value could be determined: either it is value-free and unbiased, or it is value-laden and biased. According to Creswell (2003) axiology is the roles of values play in research. Most researchers usually use ontology, epistemology and methodology to develop their research methodology.

Research methodology is a research strategy that translates ontological and epistemological principles into guideline that show how research is to be conducted (Sarantakos, 2005). Methods, on the other hand are instruments employed in the collection and analysis of data (Sarantakos, 2005). It can involve many different means, ranging from self-completed questionnaires, in-depth interviews, documentary analysis or archival research of historical documents to participant observation where the researcher listens to, and watches participants (Bryman and Bell, 2007). It might also refer to the tool or instrument used for analysing data, which may include statistical techniques to extract patterns from unstructured data or sampling. Methodology is the study of the methods that are employed (Bryman, 2008). Once the research topic has been decided then it is possible to choose the appropriate research strategy and data collection and analysis techniques. According to Sarantakos, (2005), paradigm is a set of propositions that explain how the world is perceived; contains a world view, a way of breaking down the complexity of the real world, telling researchers and social scientists in general. On the other hand, according to him, methodologies are closer to research practice than paradigms. The researchers always refer to methodologies rather than paradigms when describing their work as they are used ‘quantitative research’ than ‘positivist research’ (Sarantakos, 2005).

3.3.1 Research Philosophy Consideration

In chapter 1, the research aim is to establish the significance of knowledge sharing initiatives in the planning permission process and to develop guidance in this regard for local authorities in Malaysia with a view to improving the process. The philosophy or paradigms influence the choice of methodology applied to the research practice and, because of this, the different philosophical positions need to be identified. Ontology logically precedes epistemology

whilst epistemology precedes methodology. Two fundamentally different and long standing debated paradigms among research philosophers are positivist and phenomenological (Collis and Hussey 2003). Positivism uses a deductive approach and experimental strategy to test hypotheses, whereas phenomenology uses qualitative and naturalistic approaches to inductively understand human behaviour. As such, the literature seems comfortable to refer to the positivism paradigm as quantitative and the phenomenological paradigm as qualitative research. However, in respect of the phenomenological paradigm, some researchers prefer to use the term interpretivist (Collis and Hussey, 2003).

Knowledge sharing (KS) within LAMs are complex social process therefore, for this research, the researcher has chosen mixed method approach. As Johnson and Onwuegbuzie, (2004) revealed, the mixed method approach is formally defined as the class of research where the researcher mixes or combines quantitative and qualitative methodologies, methods, concepts or language into a single study. Collis and Hussey (2003) mentioned that once a researcher has determined the choice of paradigm in the study, it is not unusual in research, to take a mixture of approaches. Similar with Easterby-Smith *et al.* (1991) declared that deciding on suitable methodologies and research methods depends on the research paradigms and their assumptions. What is central, they argued, is how well one pulls the data together to make sense of the research. A combination of research procedures is more useful than a single one, since the different methods have their pros and cons, therefore, combining both together can be complementary to the phenomenon studied (Saunders *et al.*, 2007; Bryman and Bell, 2003; Paton, 2002).

Denzin and Lincoln (1994) suggested that a research paradigm provides a basic set of beliefs that guides action, which is called 'the net' that contains the researcher's epistemological, ontological and methodological premises (assumptions). In addition, Creswell (1998) extends to include axiological and rhetorical assumptions. In summary, what knowledge is (ontology), how we know it (epistemology), what values go into it (axiology), how we write about it (rhetoric), and the process of studying it (methodology).

Mixed methods is another important research paradigm (Kuhn 1962) in Johnson *et al.* (2007) that should be used as a method and philosophy that attempt to fit together the insights provided by qualitative and quantitative research (Johnson and Onwuegbuzie, 2004).

According to Creswell and Plano Clark (2007, p.5) the definition of mixed methods as follows:

Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative approaches in many phases in the research process. As a method, it focuses on collecting, analysing, and mixing both quantitative and qualitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone.

Pragmatism is another name or philosophical partner for mix methods (Johnson and Onwuegbuzie, 2004). Pragmatism allows the research approaches to mix successfully and can offer the best opportunities for answering important research questions (Johnson and Onwuegbuzie, 2004). According to (Saunders *et al.* 2007) highlighted that if the research question does not suggest clearly that either a positivist or interpretivist philosophy is adopted, then it is confirmed that the pragmatist's view is perfectly possible to work with both philosophies. Furthermore Johnson *et al.* (2007) believed that one or more of the pragmatisms can provide a philosophy that supports paradigm integration and helps mixed research to peacefully coexist with the philosophies of quantitative and qualitative research.

According to Creswell and Plano Clark (2007) there are four types of mixed methods designs: the Triangulation Design, the Embedded Design, the Explanatory Design, and the Exploratory Design.

- Triangulation design or also referred as the convergent design occurs when the researcher uses concurrent timing to implement the quantitative and qualitative strands during the same phase of the research process, prioritizes the methods equally, and keeps the strands independent during analysis and then mixes the results during the overall interpretation.
- Embedded design occurs when the researcher collects and analyzes both quantitative and qualitative data within a traditional quantitative or qualitative design. In

embedded design, the researcher may add a qualitative strand within a quantitative design or add a quantitative strand within a qualitative design.

- Explanatory design also referred to as the explanatory sequential design occurs in two distinct interactive phases. This design starts with the collection and analysis of quantitative data, which has the priority for addressing the study's questions. This first phase is followed by the subsequent collection and analysis of qualitative data. The second, qualitative phase of the study is designed so that it follows from the results of the first, quantitative phase
- Exploratory design, which is also referred to as the exploratory sequential design. The exploratory design begins with and prioritizes the collection and analysis of qualitative data in the first phase. Building from the exploratory results, the researcher conducts a second, quantitative phase to test or generalize the initial findings. The researcher then interprets how the quantitative results build on the initial qualitative results.

For this research, the researcher has chosen a “mixed method research” as the most appropriate research philosophy. Explanatory sequential design is suitable for this research (Creswell and Plano Clark, 2007). This research has employed the quantitative dominant mixed methods research. At the same time qualitative data and approaches are benefit for the research. The overall purpose of this design is to explain when the researcher needs qualitative data to explain quantitative significant (or no significant) results, positive-performing exemplars, outlier results, or surprising results (Bradley et al., (2009); Morse, (1991) in Creswell and Plano Clark, 2011).

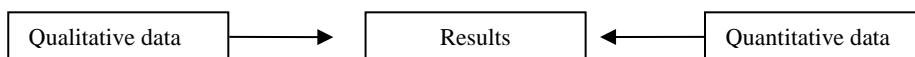
3.3.2 Research Strategy

The research strategy is a process or general plan as to how a researcher will go about answering the research questions and meeting the research objectives (Saunders *et al.*, 2007). In other words, the research strategy is a method used to accomplish the research and define the manner of data collection and analysis. Creswell (2009) defined research strategy as ‘a proposal to conduct research that involves the interaction of philosophy, strategies of inquiry and specific methods’. Saunders *et al.* (2007) emphasized that there is no research strategy

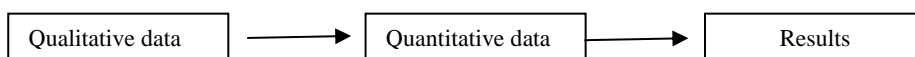
that is inherently superior or inferior to any other. Therefore, the most important factor is not the label that is attached to any particular strategy; it is whether that strategy will answer the particular research questions and objectives.

As mentioned, this research employed explanatory sequential design, quantitative dominant. Thus the appropriate strategies identified in this research are semi structured interviews and survey. The research started with interviews then followed by questionnaires survey (email and online questionnaires survey). The reason for starting with interviews is to reduce the list of variables in questionnaires survey. The data are merged when the researcher takes the two data sets and integrates them. The researcher has analysed the results separately and merging the two sets of results together during interpretation and discussion phase. The applications of qualitative components are used to shed light on numerical results (Hackett and Martin 1998, p.87). Figure 3-2 shows the three ways of mixing qualitative and quantitative data occurs (Creswell and Plano Clark, 2007):

Merge the data:



Connect the data:



Embed the data:

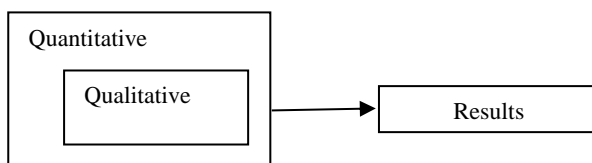


Figure 3-2: Three ways of mixing qualitative and quantitative data

Below (Table 3.2) shows the methodological issues and challenges in conducting mixed methods.

Table 3.2: Methodological Challenges in Conducting Mixed Methods

Methodological Issues	Challenges
Resources	Multiple forms of data are being collected and analysed, mixed methods research requires extensive time and resources to carry out the multiple steps involved in mixed methods research, including the time required for data collection and analysis.
Teamwork	In multidisciplinary, interdisciplinary, and transdisciplinary teamwork, different approaches might emerge to an investigation as well as different writing styles. Team leaders need to anticipate the challenges and benefits of a team approach to mixed methods research.
Page and word limitations	Investigators still need to justify their procedures in a high-quality mixed methods study. Organizing information into a table or presenting a figure of the mixed methods procedures can aid in conserving space. Page and word limitations also affect publication of mixed methods studies in scholarly journals in which word limitations call for creative ways to present material (Stange, Crabtree, & Miller, 2006).
Sampling issues	Adequate discussions about sampling issues are available elsewhere (Creswell & Plano Clark, 2011; Teddlie & Yu, 2007). However, some challenges specific to concurrent designs (i.e., merging quantitative and qualitative research) include having adequate sample sizes for analyses, using comparable samples, and employing a consistent unit of analysis across the databases. For sequential designs (i.e., one phase of qualitative research builds on the quantitative phase or vice versa), the issues relate to deciding what results from the first phase to use in the follow-up phase, choosing samples and estimating reasonable sample sizes for both phases, and interpreting results from both phases.
Analytic and interpretive issues	Issues arise during data analysis and interpretation when using specific designs. When the investigator merges the data during a concurrent design, the findings may conflict or be contradictory. A strategy of resolving differences needs to be considered, such as gathering more data or revisiting the databases. For designs involving a sequential design with one phase following the other, the key issues surround the “point of interface” in which the investigator needs to decide what results from the first phase will be the focus of attention for the follow-up data collection. Making an interpretation based on integrated results may be challenging because of the unequal emphasis placed on each dataset by the investigator or team, the accuracy or validity of each dataset, and whether philosophies related to quantitative or qualitative research can or should be combined.

Source: Creswell *et al.* (2011)

3.4 Research Method

The research methods or research instruments are actually the methods and ways a researcher uses to collect the data that forms the basis of the research. There are several methods for a researcher to collect data. The research methods in this study are interviews and survey. The survey is associated with deductive methodology whereby a sample of subjects is drawn from a population (Hussey and Hussey, 1997; Saunders *et al.*, 2003). Interviews also tend to be used for exploratory research. However, Punch (1998) defined a different meaning for survey, which is sometimes used to describe any research in which data (quantitative or qualitative) are collected from a sample of people. Saunders *et al.* (2003) identified that a questionnaire is not the only data collection technique that belongs to the survey strategy, as

structured observation and structured interviews also fall into this category. The advantage of a survey strategy is that it allows more control over the research process and when sampling is used it generates findings that are representative of the whole population.

In a deeper sense, Salomon (1991) pointed out that the issue is not quantitative or qualitative, but is a means of understanding a few controlled variables through an analytical approach and through a systemic approach to understand the interaction of variables in a complex environment. The Table below (Table 3.3) shows the detailed reasons for mixing quantitative and qualitative methods within the research.

Table 3.3: Detailed reasons for mixing qualitative and quantitative methods within the research

Green , Caracelli, and Graham (1989)	Bryman (2006)
<p>Triangulation - seeks convergence, corroboration, and correspondence of results from the different methods</p> <p>Complementarity- seeks elaboration, enhancement, illustration, and clarification of the results from one method with the results from the other method.</p> <p>Development -seeks to use the results from one method to help develop or inform the other method, where development is broadly construed to include sampling and implementation, as well as measurement decisions.</p> <p>Initiation - seeks the discovery of paradox and contradiction, new perspectives of frameworks, the recasting of questions or results from one method with questions or results from the other method.</p> <p>Expansion- seeks to extend the breadth and range of inquiry by using different methods for different inquiry components.</p>	<p>Triangulation - or greater validity refers to the traditional view that quantitative and qualitative research might be combined to triangulate findings in order that they may be mutually corroborated.</p> <p>Offset- refers to the suggestion that the research methods associated with both quantitative and qualitative research have their own strengths and weaknesses so that combining them allows the researcher to offset their weaknesses to draw on the strengths of both.</p> <p>Completeness- refers to the notion that the researcher can bring together a more comprehensive account of the area of inquiry in which he or she is interested if both quantitative and qualitative research are employed.</p> <p>Process - refers to when quantitative research provides an account of structures in social life but qualitative research provides sense of process.</p> <p>Different research questions- refers to the argument that quantitative and qualitative research can each answer different research questions.</p> <p>Explanation - refers to when one is used to help explain findings generated by the other.</p> <p>Unexpected results- refers to the suggestion that quantitative and qualitative research can be fruitfully</p>

combined when one generates surprising results that can be understood by employing the other.

Instrument development - refers to contexts in which qualitative research is employed to develop questionnaire and scale items—for example, so that better wording or more comprehensive closed answers can be generated.

Sampling- refers to situations in which one approach is used to facilitate the sampling of respondents or cases.

Credibility- refers to suggestions that employing both approaches enhances the integrity of findings.

Context - refers to cases in which the combination is rationalized in terms of qualitative research providing contextual understanding coupled with either generalizable, externally valid findings or broad relationships among variables uncovered through a survey.

Illustration - refers to the use of qualitative data to illustrate quantitative findings, often referred to as putting “meat on the bones” of “dry” quantitative findings.

Utility or improving the usefulness of findings- refers to a suggestion, which is more likely to be prominent among articles with an applied focus, that combining the two approaches will be more useful to practitioners and others.

Confirm and discover- refers to using qualitative data to generate hypotheses and using quantitative research to test them within a single project.

Diversity of views - includes two slightly different rationales—namely, combining researchers’ and participants’ perspectives through quantitative and qualitative research respectively and uncovering relationships between variables through quantitative research while also revealing meanings among research participants through qualitative research.

Enhancement or building upon quantitative and qualitative findings - entails a reference to making more of or augmenting either quantitative or qualitative findings by gathering data using a qualitative or quantitative research approach.

Source : in Creswell and Plano Clark (2011)

There are also some reasons why qualitative and quantitative methods should be mixed.

Table 3.4: The reasons for combining methods

Stages	Qualitative	Quantitative
During Design	It helps qualitative research by finding a representative sample and locating deviant cases.	It helps quantitative research by aiding with conceptual development and instrumentation.
During Data Collection	It helps qualitative research by supplying background data, discovering overlooked information and helping avoid 'elite bias' (high status respondents).	It helps quantitative research by making access and data collection easier.
During analysis	It helps by showing the generality of specific observation, correcting the monolithic judgments about the case and verifying or casting new light on qualitative findings.	It helps by validating, interpreting, clarifying and illustrating quantitative findings as well as through strengthening and revising theory.

Source: Sieber, (1973)

Weston *et al.* (2001) identified that research of this nature should attempt to mix methods to some extent, as this will provide more perspective on the phenomena being studied. This is in line with Denscombe (2004) who used qualitative and quantitative methods because they are widely used and understood within the field. The methods provide a signpost on the kinds of assumption being made and the nature of the research being undertaken. In addition, the mixing of methods within a study can occur in the data collection, the data analysis and the data interpretation sections of the study. Combining data from different methods are more likely to yield a more complete picture about the research being done and the use of different methods can give the strength of each data to answer the research questions.

Johnson *et al.* (2007) emphasized that mixed methods or also referred as mix research can be viewed as incorporating several overlapping types of mixed methods research. According to Johnson *et al.* (2007) mentioned that the strongest or 'pure' mixed methods or equal status continuum for the researcher that self-identifies as a mixed methods researcher (refer to figure 3-3). This researcher takes as his or her starting point the logic and philosophy of mixed methods research. The other area moving outward in both directions from the centre of pure mixed methods is other homes for researcher to visit when his or her research can benefit from such a visit (Johnson & Onwuegbuzie, 2004). The area from both directions from the centre of pure mixed methods labeled as *qualitative dominant* and *quantitative*

dominant mixed methods (refer to figure 3-3). Definiton of qualitative dominant is as follows:

Qualitative dominant mixed methods research is the type of mixed research in which one relies on a qualitative, constructivist-poststructuralist-critical view of the research process, while concurrently recognizing that the addition of quantitative data and approaches are likely to benefit most research projects (Johnson et al. 2007).

The definition of quantitative dominant is as follows:

Quantitative dominant mixed methods research is the type of mixed research in which one relies on a quantitative, postpositivist view of the research process, while concurrently recognizing that the addition of qualitative data and approaches are likely to benefit most research projects (Johnson et al. 2007).

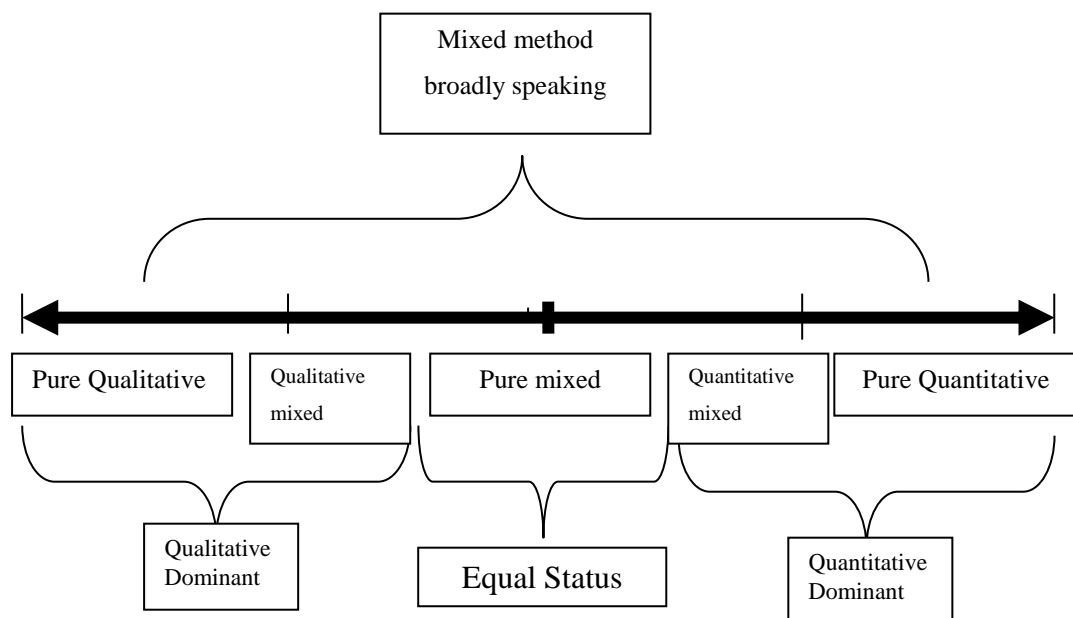


Figure 3-3: Graphic of the three major research paradigms, including subtypes of mixed methods research

(Source: Johnson *et al.* 2007)

In this context, the researcher has decided that the quantitative dominant of mixed methods will be utilised to investigate, and subsequently report on the knowledge sharing initiatives within LAM. As mentioned in Research Philosophy Consideration (3.3.1) this research is employed explanatory sequential design. This research has employed the quantitative dominant mixed methods research and at the same time qualitative data and approaches are benefit for the research.

As mentioned before in chapter 1, this research aims to identify the extent that knowledge sharing initiatives impact on the planning permission process and how best this can be conceptually modelled and presented. Mixed methods are suitable for the research problem as Creswell *et al.* (2011) revealed that it is useful when researchers may seek to view problems from multiple perspectives to enhance and enrich the meaning of a singular perspective. Other reasons include to merge quantitative and qualitative data to develop a more complete understanding of a problem; to develop a complementary picture; to compare, validate, or triangulate results; to provide illustrations of context for trends; or to examine processes/experiences along with outcomes (Plano Clark, 2010). Additionally according to Plano Clark (2010) when a quantitative phase follows a qualitative phase, the intent of the investigator may be to develop a survey instrument, an intervention, or a program informed by qualitative findings. When the quantitative phase is followed by the qualitative phase, the intent may be to help determine the best participants with which to follow up or to explain the mechanism behind the quantitative results (Plano Clark, 2010).

The information were collected initially through a review of the literature of knowledge sharing overall and in the context of Malaysia, then from semi-structured interviews (qualitative), and, finally, from a questionnaire survey (quantitative). The informations were also drawn from different levels of management (Heads of Planning Departments, Heads of One-Stop Centres and Planning Officers). These approaches were used to supplement one another in the same study, with each method seeking to confirm or validate the findings from the other and strengthen the outcomes of the study because the advantages of one approach can compensate for the weaknesses of the other. This is in line with several authors, such as Hammersley and Atkinson (1983), who recommended using a combination of techniques to interpret the information. Grix (2001) recommended not using interviews as the sole method but rather to apply them in conjunction with other methods of enquiry.

3.5 Unit of Analysis

The unit of analysis refers to the level of aggregation of the data collected during the subsequent data analysis stage and the research question will determine the unit of analysis for the research (Sekaran, 2006). The main unit of analysis for this study was the planning and OSC department within the local authorities in Malaysia. The embedded units were employees in the organisations. This department was chosen because it deals with all the planning permission applications. Organisations were considered based on their size, such as city, municipal or district authority. Semi-structured interviews and a questionnaire were used to collect data for this study. The Table below (Table 3.5) shows a summary of the methodology issues of the interviews and survey.

Table 3.5: Summary of the Methodology Issues

Methodology Issues		
Survey Type	Cross Sectional	
Research Method	Mixed method	
Unit Analysis	Organisation	
Respondents	Heads of Department of Planning and One-Stop Centres Planning Officer Assistant Planning Officer	
Database	Ministry of Housing and Local Government Peninsular Malaysia (constituted under an Act of Local Government 1976 (171 Act)	
Sample Location	Local authorities <ul style="list-style-type: none"> • City authority • Municipal authority • District authority 	
Data Collection	Main Study	
Period of Study	November 2010 - January 2011	
Research Tactics	Semi-structured interviews	Email Survey (Attached Questionnaire) Web Survey (online)
Sampling strategy	Purposive sampling	Entire Population
Recording Instrument	Skype Internet Telephony system and call graph for Skype	Database
Interview Time	30-45 minutes	
Size (Population)	20 organisations	294 respondents out of 98 organisation(3 level of officers for each organisations)
Total Number of respondents	20 interviewees from 20 different organisations	103 usable surveys (35.03%)
Data Analysis	Content Analysis	Statistical Analysis
Analysis Tools		SPSS 19

3.6 Identification of the Population Sample and Selection of a Sample Frame

In this study, the unit of analysis was an organisation and the embedded unit was an employee. In order to ensure reliable and adequate data it is necessary to have a population sample that is homogenous, comprehensive and one which gives a true representation of the

local authorities that carry out the planning permission process within Malaysia. The reason for using the entire population was that it could be theoretically possible to collect data from all 98 local authorities in peninsular Malaysia, which would likely produce more reliable results and generalisation. To ensure the right sample selection, the researcher referred to the definition of organisation size, in the context of the LAM. LAM can be divided into three main categories: city, municipal and district authority (Local Government of 1976 (Act 171)). These categories are based on several criteria: financially autonomous with annual revenue, total number of employees, experiencing growth and economic development and population (see Table 3.6 below). However, according to the European Commission (2003) the size of an organisation can be defined in terms of the number of employees, the balance sheet and the annual turnover.

Table 3.6: Categories of Malaysia Local Authorities.

Criteria	City	Municipal	District
Description	The central administration of a state.	Major cities or the central administration of a state or country.	Other major urban areas.
Population	Not less than 500,000 people.	Not less than 150,000 people.	Less than 100,000 people.
Annual outcome	Not less than RM100 million.	Not less than RM20 million.	Total annual revenue less than RM20 million.
Employees	More than 200.	Less than 200.	Less than 100.

(Adapted from State Council Meeting for Local Government (MNKT) 60th on 3rd of June 2008)

The number of employees was adopted in this study as a measure of organisational size because of the ease in obtaining this information. The number of employees was adopted as a measure because this study deals primarily with organisational knowledge to which employees are the main contributors. However, a study undertaken by Quaddus & Xu (2007) declared that the size of an organisation (“organisational size”) does not have any effect on the ‘initiation’ and ‘use behaviour’ of KMS. However, for practical reasons, only one measure should be chosen (Newbould and Wilson, 1977).

Several efforts were made to obtain a suitable list of local authorities in Malaysia. Initially, the Ministry of Local Government was consulted for the addresses and the list of local

authorities, especially in the context of the planning permission process. (Refer to Appendix 2). Other attempts were also made in an effort to ensure that a participant letter could be sent to each local authority. A search of the Internet, based on the name of the local authority, was also conducted in order to obtain contact numbers, address and email address for the officer in charge.

On 22nd January 2010, the researcher sent a consent form and a letter asking for cooperation to the top management (the Presidents) of 98 local authorities by post to inform them of this research and to request the contact details (name, email address and telephone number) of four members of his/her staff who are involved in the planning permission process. At the same time, these local authorities were informed as to how this research would be conducted, namely, the distribution of questionnaires via email and by conducting interviews. The top management were also requested to provide feedback regarding the consent and the cooperation via the researcher's email address.

The President or the top management of an organisation is responsible for the overall management in the organisation and for establishing the operating policies and guiding the organisation's interactions with its environment (Stoner *et al.*, 1995). In the context of the LAM, the top management is the Yang Dipertua Majlis or the President of the Council. The chosen officers that the researcher requires to take part in the studies are those involved in the planning permission process in local authorities. Heads of the Department of Planning, Heads of the Department of the One-Stop Centres and Planning Officers are the staff members that have been identified as the most suitable people to be involved in this research. Most of these people are middle managers (Heads of Department). A middle manager is responsible for directing the activities that implement their organisation's policies and to balance the demands of their managers with the capacities of their employers. Another function of middle management is to plan, organise, lead and control the relationships between the employees in their department (Stoner *et al.*, 1995). Table 3.7 below provides the details regarding sending consent letters to the local authorities.

Table 3.7: Details concerning sending consent letters to the local authorities

Date	Status	The number agreeing to participate in the interviews
22 nd January 2010	Sending letter to 30 local authorities	4
15 th February 2010	Sending second letter to 20 local authorities	11
1 st March 2010	Third Reminder Letter	6
Total		21

With regard to the semi-structured interviews, the researcher sent a letter to the Ministry of Housing and Local Government (MHLG) to obtain and identify thirty local authorities that could participate in the semi-structured interviews. The selection of this list was based on a grading system developed by the MHLG (Development Administration Circulation, 2008). Implementation of this grading system is in line with government policies to improve service delivery and one of the criteria for core services is development control.

Twenty-one local authorities agreed to give full cooperation in the semi-structured interviews. Most of the agreed interviewees were Heads of Departments of Planning and Heads of the Departments of One-Stop Centres. Tables 3.8 and 3.9 below show the stratified sampling for the interviews and the composition of the entire population of the survey.

Table 3.8: Stratified Sampling for the Interviews

Description	City	Municipal	District	Total
Total Number	8	33	57	98
Percentage	8.16%	33.67%	58.16%	
Target interview	30			
Stratified Sampling	2	10	17	30
Willing to cooperate	6	8	7	21

Table 3.9: The Composition of the Entire Population of the Survey

Description	City	Municipal	District	Total
Total Number	8	33	57	98
Percentage	8.16%	33.67%	58.16%	
Target Survey	3			
Population	24	99	171	294

3.7 Method of Data Collection

In order to achieve the aim of this research (to establish the significance of knowledge sharing initiatives in the planning permission process and to develop guidance in this regard for local authorities in Malaysia with a view to improving the process) a diverse range of methods to collect both in-depth and generally applicable data were employed. The most commonplace methods of collecting data are a questionnaire survey and interviews. Each of these has its advantages and disadvantages. According to Grix (2001), the advantages of semi-structured interviews are that they allow a certain degree of flexibility and allow for the pursuit of unexpected lines of enquiry during interviews. Alkhaldi (2003) added that there are disadvantages within semi-structured interviews when asking about sensitive topics. Research done by Tourangeau and Smith (1996) showed that respondents tend to report more in self-completion questionnaires as compared to structured interviews when asked about sensitive topics.

The main advantage of a questionnaire survey is that a large number of questionnaires can be sent out or can be widely dispersed geographically (Bryman, 2008). However, it is important to bear in mind that questionnaires do not all come back immediately. Also, there is a need to send out follow up letters or to resend questionnaires to those who fail to return them initially. In this research, the researcher chose an email questionnaire survey (the questionnaire is attached as Appendixes 3) an online questionnaire and telephone interviews instead of postal questionnaires and face-to-face interviews. The reasons why the researcher has chosen these methods will be explained below.

3.7.1 Semi-Structured Interviews

The purpose of the interviews was to obtain a first-person description of some specified domain of experience and to provide a relatively flexible format for the gathering of data. Bryman and Cassell (2006) believe that the strongest reason why interviews are used is because a questionnaire is not able to answer all aspects of the research question. They added that interviews typically take place because the researcher has uncovered an area where practice and opinion have not been articulated in a systematic way. In addition, adjustments can be made to data collection instruments, such as the addition of questions to an interview protocol (Eisenhardt, 1989). Ambiguity in questions or answers may be clarified by the researcher immediately (Egbu, 1994). Semi-structured interviews were used in this research for data collection, as they provide the most suitable medium for obtaining in-depth detail for research material. Semi-structured interviews were also useful as there were different levels of managerial categories of the participants (Heads of Department of Planning, Heads of Department of One-Stop Centres and Planning Officers). These will provide different interpretations of the area under study and by looking from these different managerial levels it not only compares the way different people view the situation but it also develops better lines of enquiry, which provide the opportunity to check out emergent themes and patterns as the interviews progress (Easterby-Smith *et al.*, 1991)

As mentioned earlier, thirty participants from the LAM were selected and were sent a letter on 22nd January 2010 regarding this research and to gain consent from them to take part. Second and third follow-up letters were also sent (where needed) to remind them of the study, and a total of twenty-one replied that they were willing to undertake the semi-structured interviews. Table 3.10 below shows the distribution of LAM that were willing to participate in the semi-structured interviews.

Table 3.10: Number of participants by authority willing to take part in the semi-structured interviews

City	Municipal	District	Total
6	8	7	21

The following are the research objectives that were used in the semi-structured interviews approach:

- To explore the nature of knowledge sharing tools and techniques and to what extent they are used in local authorities in the context of the planning permission process.
- To ascertain the extent to which knowledge typology and different contexts impact upon the use and exploitation of knowledge sharing tools and techniques and the efficacy of these knowledge sharing tools and techniques with respect to the planning permission process.
- To identify and appraise the impact of organisational structure, culture and motivational constructs on the effective sharing of knowledge in local authorities of various sizes with respect to the planning permission process.
- To investigate and document the main challenges faced in, and the critical success factors for effective knowledge sharing in local authorities with respect to the planning permission process.
- To measure the impact/contribution of knowledge sharing initiatives in improving the planning permission process.

The reason for choosing these research objectives for the semi-structured interviews is because the researcher wanted to acquire richness in this research of reality as it really is, and as it is manifested in everyday life events (Sarantakos, 2005). According to Egbu (1994), other reasons why a semi-structured interview approach is frequently chosen are:

- With semi-structured interviews, responses to questions are likely to be spontaneous, which may in some circumstances reflect the true situation more accurately than a considered response. There is the likelihood in the case of a considered opinion, for the respondent to give the response, which he/she considers that the investigator wants or the response that the respondent feels comfortable with, and one that reveals him/her to be a "better person" than the "true" answer would. Through semi-structured interviews, the researcher can judge (face-to-face) whether the interviewee is telling the truth.
- Semi-structured interviews allow for in-depth discussions in areas of concern. In so doing, new areas not already thought of, could emerge. This gives the researcher the flexibility for obtaining more information that is related to the area of concern while

working towards the stated objectives of the study, and without deviating a great deal from the subject matter.

- With semi-structured interviews, ambiguity in questions or answers may be immediately clarified by the researcher.

3.7.2 Piloting and Pre-Testing Questions

The purpose of a pilot test or a trial run is to increase the reliability, validity and practicality of the questionnaire (Oppenheim, 1992). Saunders *et al.* (2009) stated that the purpose of a pilot test is to refine the questionnaire so that respondents will have no problems in recording the data. It also provides interviewers with some experience of using the questions and can infuse them with a greater sense of confidence (Bryman and Bell, 2007). Seeking for evidence of content validity in this study, the semi-structured interview questions were tested on two former planning officers. The officers were asked to perceive whether the questions responded to the research questions or not. Both of them had been (as they were ‘former’ planning officers) directly involved in the planning permission process, one being a former Head of Department in a Planning Department. These respondents were colleagues of the researcher; one was at the same university where the researcher studied and the second came from the same faculty where the researcher worked. It is best to use friends or family to provide at least some idea of a questionnaire’s face validity (Saunders *et al.*, 2009). Both discussions took around 45 minutes to one hour in length and were recorded. The researcher acknowledges that their comments and suggestions concerning the interview session were very useful for the purpose of refining the interview questions. For the online survey questionnaire pilot study, ten respondents were selected from the list of respondents. The design of questionnaire will affect the response rate and the reliability and validity of the data collected. The literature regarding the response rate has been discussed above.

3.7.3 Reasons for choosing the semi-structured telephone interview approach

This research adapted the semi-structured telephone interview approach. This was because of the wide geographical spread of the organisations involved, which would make face-to-face

interviews time consuming and costly. Earlier researchers have identified the advantages of the telephone interview. Creswell (1999) stated that telephone interviews provide the best source of information when the researcher does not have direct access to the interviewee and, at the same time, this method can offer speedy data collection and lower costs (Saunders *et al.*, 2007) and can be seen as more convenient and also quicker to administer. According to Bryman (2008), the telephone interview is easier to supervise than the face-to-face interview. The advantages and disadvantages of using a telephone interview in comparison with a face-to-face interview can be seen in Table 3.11.

Table 3.11: A comparison between telephone and face-to-face interviews

Criteria	Telephone interview	Face-to-face interview
Economy (cost and time)	Lower cost compared to face-to-face interviews. It is more convenient.	Higher cost and it takes a longer time (involves time and money for travelling).
Efficiency of data collection	Shorter data collection	Moderate
Response rate	High response rate in terms of time consuming	Low response rate in terms of time
Distribution of sample	May be widely distributed	Must be clustered
Sample size	Large	Small

Although the advantages of telephone interviews have been discussed this method also suffers from certain limitations. The use of a telephone interview eliminates the possibility of evaluating an interviewee's nonverbal clues (such as the interviewee indicating confusion, uncertainty or waning motivation), and, thus, allowing the interviewer to react to those clues in constructive ways, reducing the difficulty of the task and bolstering enthusiasm.

With the advent and widespread use of information technology and the Internet the use of a computer-assisted telephone for interviewing (CATI), the use of a software that turns a personal computer into a telephone, and using voice over the internet protocol (VoIP) technology have added to the general efficiency of the telephone. 'Skype' with an embedded recorded "Call-Graph" is one of the voice over the Internet protocols (VoIP) that continues to maintain its unique advantages and its popularity in practice. The advantages of using this software is that it provides an easy way to communicate around the world and the cost is less when compared to standard telephone costs, and, also, all the conversation is automatically

recorded in the computer hard drive. Figure 3-4 shows the interface of 'Skype' with embedded recorded 'Call-Graph'.

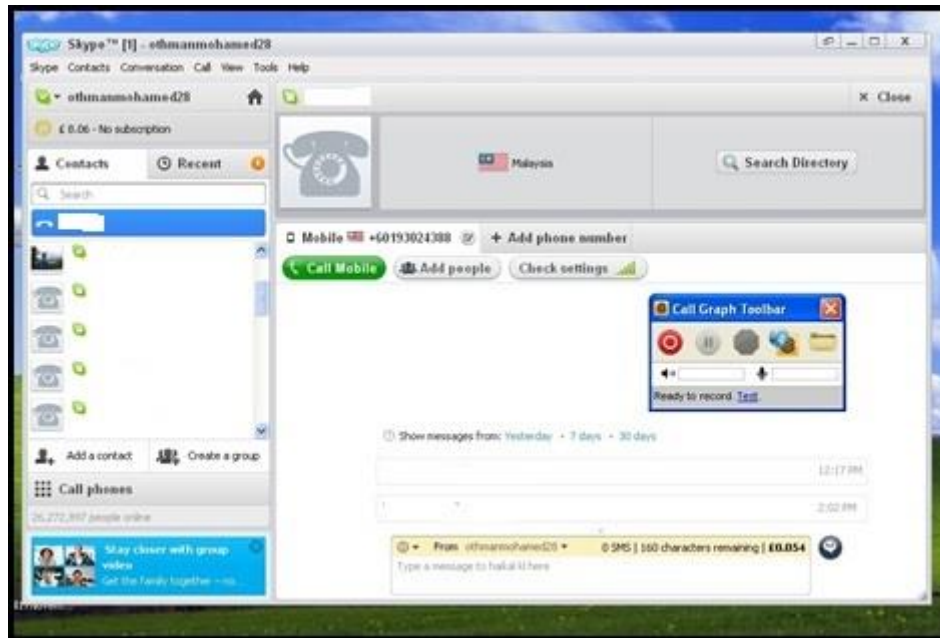


Figure 3-4: The interface of 'Skype' with embedded recorded "Call-Graph".

3.7.4 Process of the semi-structured telephone interviews

The list of potential interviewees was obtained from the MHLG and consent letters were obtained from 30 local authorities. Before conducting the interview sessions, the researcher sent an email to the individual interviewees to provide the aims and purpose of the research and to confirm the date for conducting the interview session. Telephone calls were also made to reconfirm these details and to take into consideration the time and place. All this action was undertaken to ensure that the interviewees were ready, calm and at peace without any distraction from the environment at the time of their interview. Before starting the interview session, the researcher reconfirmed to the interviewees that their name, rank and department would not be revealed to any third party.

The timing for the interviews was based on office hours in the Malaysian government, which vary slightly between the states. Table 3.12 shows the office hours in local authorities in

Malaysia. The researcher had to acquaint himself with these differences in office hours when making the arrangements to conduct these sessions. Another factor that had to be taken into consideration was the time difference between the United Kingdom and Malaysia (A time difference of 8 hours).

Table 3.12: Malaysia's local authority's office hours shown by state

State	Office Hours
Johor, Melaka, Negeri Sembilan, Selangor, Pahang, Perak, Pulau Pinang and Perlis	Monday to Friday 8.00 am – 4.30 pm Friday 8.00 am – 12.00 pm 1.45 pm – 4.30 pm
Kelantan, Terangganu, Kedah	Sunday to Wednesday 8.00 am – 5.00 pm Thursday 8.00am – 3.30 pm

Most of the interviewees preferred to be interviewed between 10.00am and 12.00pm, and 3.00pm and 5.00pm, as these were the times when they felt most comfortable, calm and at peace. The interviews were conducted between 7th October 2010 and 7th November 2010. However, due to certain reasons (such as the interviewees attending meetings, attending seminars, and, on occasion, not being present at the office base) the researcher extended the period of collecting data to 13th November 2010.

In the qualitative research interview, the aim was to elicit as much information or data as possible from the interviewees. It is important to get the interviewees to talk as much as possible during the session. Before starting the interview session, consent to undertake the interview was obtained from each interviewee. The semi-structured telephone interviews were digitally recorded through 'Skype' using the embedded recorded "Call-Graph", which automatically records and synchronises with the computer. Figure 3-5 shows in detail the number of the interviews undertaken between 7th October 2010 and 13th November 2010.

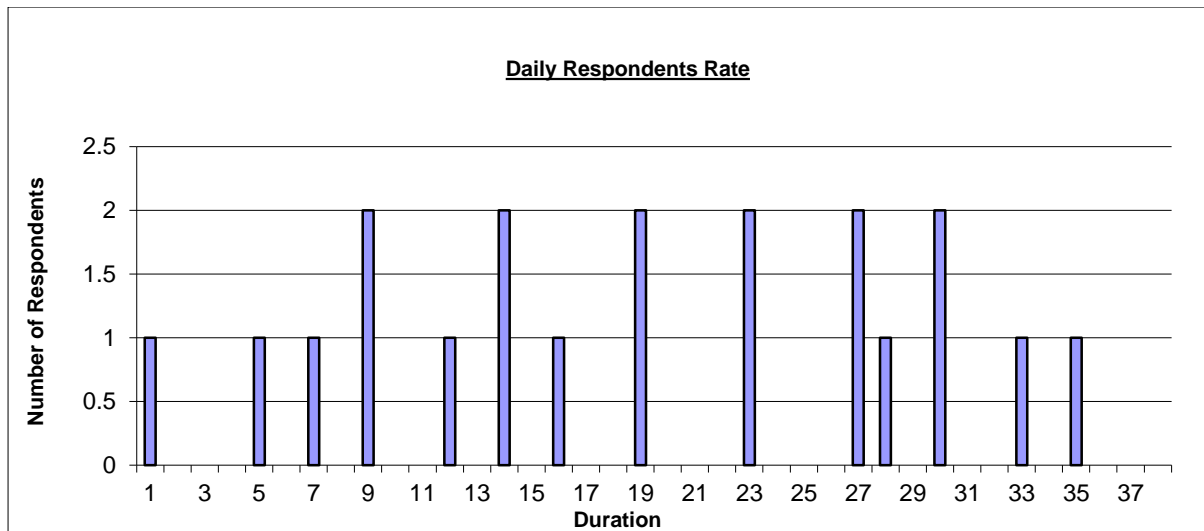


Figure 3-5: Details of the number of interviewees.

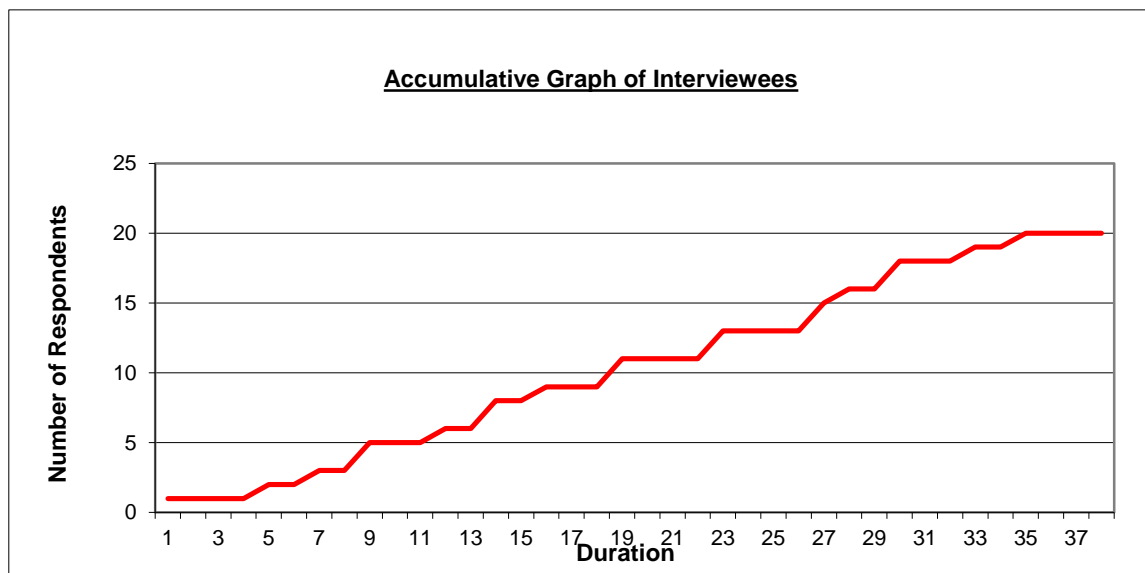


Figure 3-6: Accumulative total number of interviewees

Twenty officers were interviewed and these officers provided a cross-section of the managerial levels in the LAM including Heads of Departments of Planning, Heads of Departments of One-Stop Centres and Planning Officers. The details concerning the levels of those interviewed are given in Table 3.13.

Table 3.13: The organizational level of the interviewees

Local Authorities	Managerial Categories	Grade	No. of interviewees				Code
			HDP	HDO	PO	Total	
City	Head of Department of Planning (HDP)	J52	1				HDPC1
	Head of Department of OSC (HDO)	J44		1			HDOC1
	Planning Officer (PO)	J44			1	3	POC1
Municipal	Head of Department of Planning	J44	1				HDPM1
	Head of Department of Planning	J52	1	1			HDPM2
	Head of Department of OSC	J44		1			HDOM1
	Head of Department of OSC	J44					HDOM2
	Head of Department of Planning	J44	1				HDPM3
	Head of Department of Planning	J44	1				HDPM4
	Head of Department of Planning	J44	1				HDPM5
	Head of Department of OSC	J44		1			HDOM3
	Planning Officer	J44			1	9	POM1
District	Head of Department of Planning	J32	1				HDPD1
	Head of Department of OSC	J41		1			HDOD1
	Head of Department of OSC	J41		1			HDOD2
	Head of Department of OSC	J41		1			HDOD3
	Head of Department of OSC	J41		1			HDOD4
	Head of Department of OSC	J41		1			HDOD5
	Head of Department of OSC	J41		1			HDOD6
	Head of Department of OSC	J41		1		8	HDOD7
Total			7	11	2	20	

3.7.5 Email Questionnaire Survey and Online Questionnaire Survey

The second phase for collecting data employed the use of an email questionnaire survey and an online questionnaire survey to ascertain the respondents' views on knowledge sharing tools and techniques, on the main challenges and critical success factors associated with

knowledge sharing, and on how the implementation of organisational resources can impact on, or contribute to knowledge sharing initiatives in the context of improving the planning permission process. Since the 1990s, information and communication technologies (ICTs) have transformed the way of life, work and business. The increasing use of new technologies and equipment also offers a variety of ways for undertaking academic research electronically. Eriksson and Kovalainen (2008) defined the terms 'electronic research', e-research and online research as research activities that rely on communication that is mediated through a computer or via other new technologies. Online questionnaire survey techniques involve the administration of a basic questionnaire within which respondents indicate their response to a range of situations. Moreover, an online questionnaire survey ensures that respondents feel more comfortable in completing the questionnaire online because of the long periods of time they spend online and it also removes the need to return the questionnaire by post (Bryman, 2008).

With an email survey it is important to distinguish between an embedded and an attached questionnaire (Bryman, 2008) sent by email. With an attached questionnaire, the questionnaire arrives as an attachment to the email. To return the questionnaire the respondents must attach the questionnaire to the reply email, although the respondents may also be given the opportunity to fax or send the completed questionnaire by post to the researcher (Sheehan and Hoy, 1999). Furthermore, with an email attached questionnaire survey it is slightly easier for the respondents to type material into the attachment that uses well-known software like Microsoft Word, whereas, if the questionnaire is embedded in an email, the alignment of the questions and answers may be lost. Dommeyer and Moriarty (2000) compared two forms of email survey. They found that an online embedded questionnaire receives a higher response rate compared to that of an attached questionnaire.

For both the main email questionnaire survey (sent as an attachment questionnaire) and the online questionnaire, the first step was taken in the questionnaire process on 22nd January 2010 by sending the information and consent letters to 98 local authorities to confirm their participation in the questionnaire survey. In this letter, respondents were given an overview of the research, the reason as to why they were chosen for the research and they were requested to submit at least four email addresses for officers who deal with the planning

permission process within their authority. This was because the questionnaire was to be sent through an email and an online survey. Table 3.14 shows the numbers of respondents who participated in this research.

Table 3.14: Participation of Respondents in this Research (Questionnaire Survey)

Date	Respondents	Task	Status
22 nd January 2010	Malaysian Local Authorities (98 local authorities from Peninsular Malaysia).	Sent 1 st letter to 96 local authorities (informing them of this research and to get consent from them).	Between 22 nd January & 10 th February, only ten local authorities replied to consent to contribute to this research.
15 th February 2010		Sent 2 nd letter to 88 local authorities.	Between 10 th February and 28 th February, twenty local authorities replied to consent to contribute to this research. (Total of twenty-five consenting to date).
1 st March 2010		Sent 3 rd letter	Total of forty-five local authorities willing to contribute to this research.

Three emails and online surveys were sent to the Heads of Department of Planning, Heads of Department of One-Stop Centres and Planning Officers within each participating local authority using their personal office email address. The results of the survey only provide an indicative measure of the respondents' view.

The following are the research objectives used in the online questionnaire survey:

- To explore the nature of knowledge sharing tools and techniques and to what extent they are used in local authorities in the context of the planning permission process.
- To ascertain and document the frequency of use of the main knowledge sharing tools and techniques in local authorities and their efficacy in the context of the planning permission process.
- To investigate and document the main challenges and the critical success factors for effective knowledge sharing in local authorities with respect to the planning permission process.

- To appraise the organisational resource implications of effective knowledge sharing in local authorities with respect to the role they play in contributing to the planning permission process.
- To measure the impact/contribution of knowledge sharing initiatives in improving the planning permission process

3.7.6 Reasons for choosing the attached email and online questionnaire survey approach

This research adopted an attached email questionnaire and an online questionnaire survey; these were used due to the wide geographical spread, and because interviewing people in person would have proved time consuming and costly. Many previous researchers have identified the benefit and advantages of an online social survey. In the context of design, an online survey can take advantage of the graphic power available through programming languages; these create an attractive, interesting and compelling survey that is inviting to respondents (Schillewaert, Langerak and Duhamel, 1998). Other advantages of using online surveys are their ability to generate a high number of responses (Kehoe and Pitkow, 1995), the fact that a high volume of responses can be collected very quickly (Smith, 1997; McCullough, 1998) and the fact that the costs of both data collection and analysis can be minimised (McCullough, 1998). The Figure below (3-7) shows the interface of an online survey using the survey method.

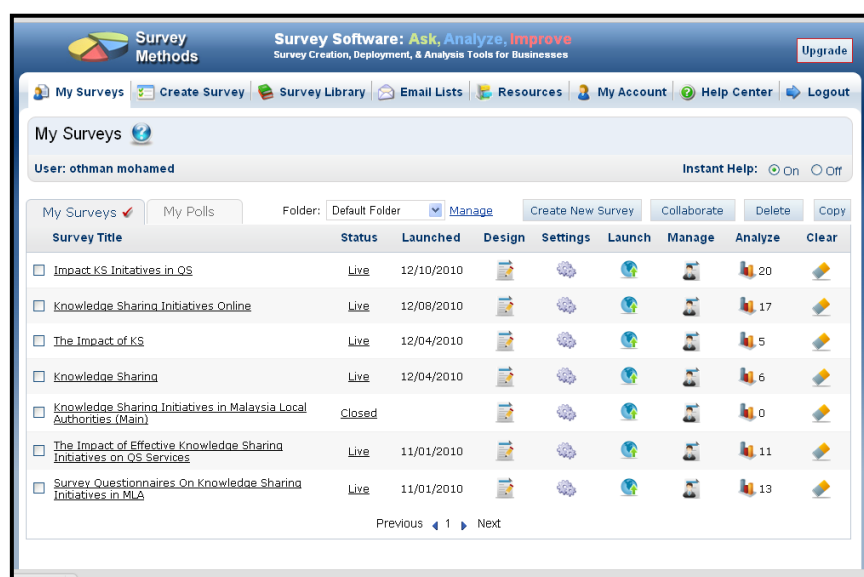


Figure 3-7: The interface of a survey method

Furthermore, Bryman (2008) noted that an attached questionnaire could be given a wider range of embellishment in terms of appearance than was possible with an embedded questionnaire. An additional benefit of using an email survey is that duplicate responses can be eliminated. Steel, Schwendig and Kilpatrick (1992) suggested that duplicate responses could become problematic since researchers using postal mail often send out multiple copies of questionnaires to their entire sample in order to increase the response rates. E-mail presents a benefit over postal mail, as e-mail responses can be tracked and previous respondents can be eliminated from the follow-up e-mail. The tracking system within the email system allows the researcher to develop a profile of non-respondents, which means that it might also be possible to attempt to contact non-respondents using an alternative method, such as telephone or by re-emailing again. Figures 3-8 and 3-9 below show the interface of a tracking system in an email survey.

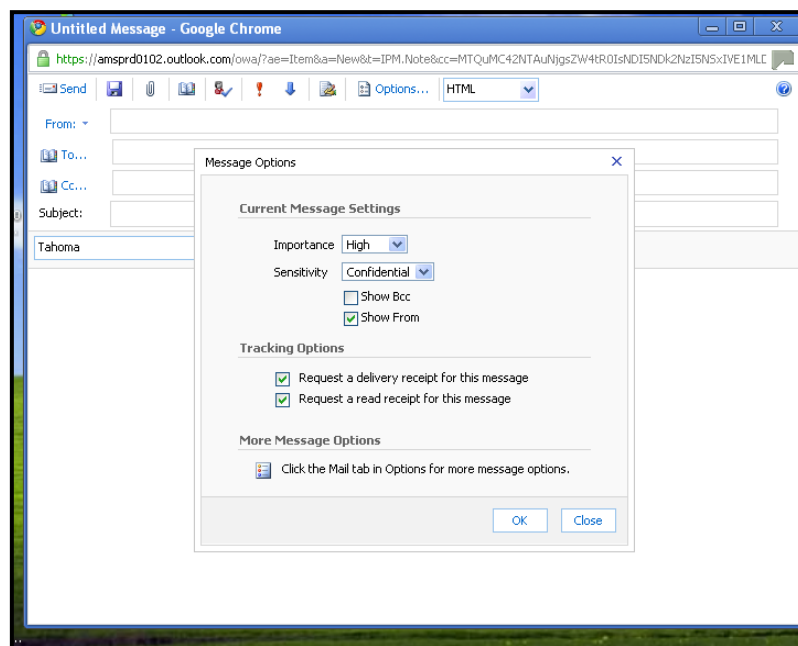


Figure 3-8: The interface of a tracking method in an email.



Figure 3-9: Delivery Status Notification for each email.

The reasons for choosing an online questionnaire as a method of data collection were:

- Faster distribution of the questionnaire and easier to manage.
- To meet the need for data triangulation.
- To allow respondents to inform and provide the research with additional issues.
- Finally, to provide an understanding regarding the issues relating to knowledge sharing initiatives.

3.7.7 The process of sending out the attached email questionnaire survey

The list of potential respondents was obtained from the LAM website and the individual websites. Before conducting the survey, the researcher sent an email and made a call to the individual respondents to remind them of the survey and to confirm their email address and to enlighten the respondent concerning:

- The purpose and objectives of the research.
- The method of how to reply to the questionnaire depending on whether the respondent was to be sent an attachment email or asked to fill in an online survey.
- The last date on which to submit the survey.

Research Methodology

The survey was conducted between 15th November and 23rd December 2010 (refer to Appendix 2) and, due to the low response rate, the researcher extended the period for collecting data until 7th January 2011 (8 weeks). A total of 103 respondents completed the questionnaire (83 respondents from the email questionnaire survey (the attachment questionnaire) and 20 from the online questionnaire). Figures 3-10 and 3-11 show the statistics of the response to the email and online questionnaire surveys and Figure 3-12 shows the number of respondents who replied to the survey.

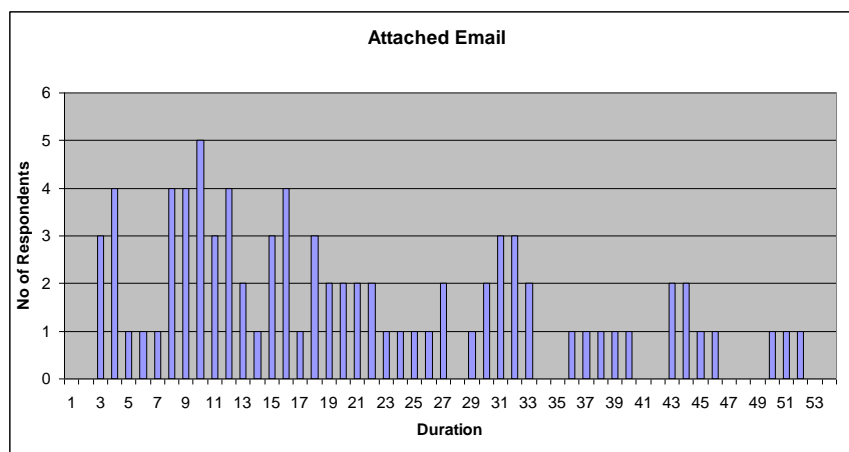


Figure 3-10: Completed questionnaires received by attached email

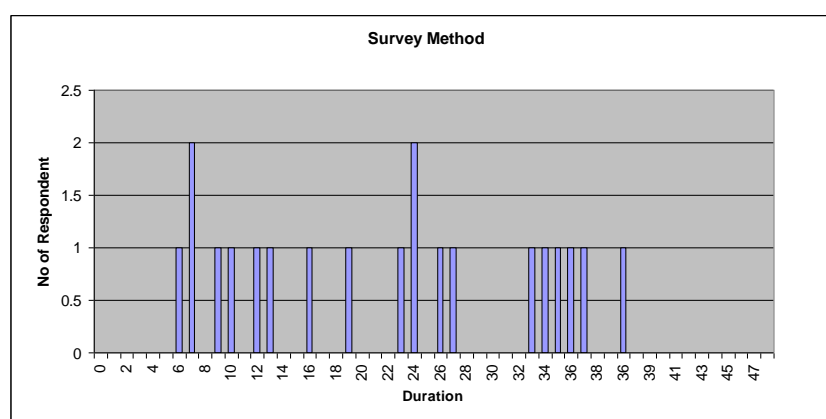


Figure 3-11: Completed questionnaires received by the survey method

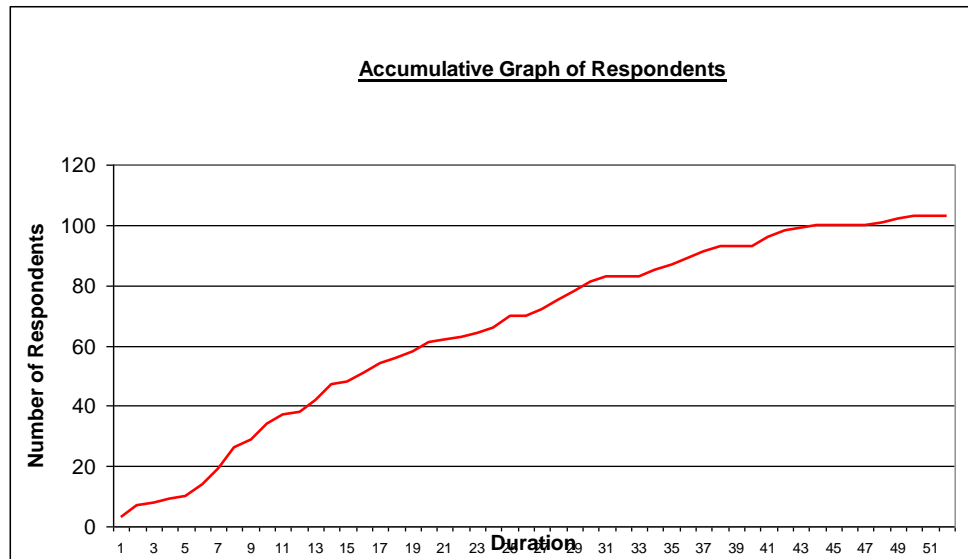


Figure 3-12: Total number of respondents who completed the survey

3.8 Designing and Content of the Questionnaire

Guidelines given by Saunders *et al.* (2007) were considered in the design of the questionnaire for this research. Saunders *et al.* (2007) listed five criteria in order to maximise the response rate plus validity and reliability: careful design of the individual questions, a clear layout, a lucid explanation of the purpose of the questionnaire, pilot testing and a carefully planned and executed administration.

These issues were duly considered in the design of the questionnaire for this research. The questionnaire comprised eight pages and used the Likert scale format. Evidence from the literature suggested that the effect of the questionnaire length on the response rate has been mixed. Creswell (2009) stated that there is no correlation between questionnaire length and lack of response. In contrast, there are views that longer questionnaires will reduce the response rate relative to shorter questionnaires (Edwards *et al.*, 2002). Dillman (2000) noted that the message contained in the self-administered questionnaire's covering letter would affect the response rate. However, the researcher developed the questionnaire according to the context where the researcher tried to answer the research questions himself. DeVaus (2002) advised researchers not to make the questionnaire longer than is really necessary to

answer the research questions and meet the objectives, and not to be too obsessed with the length of the questionnaire.

The layout of the questionnaire form was designed to appeal to the respondents. The questionnaire consisted of two sections, which were divided into eleven major question areas:

Section A- Demographic Information

This section requested general information from the respondents. This included the respondents' represented organisation, their current position and the total number of employees in their department.

Section B- Major Questions

1. This question identified the extent to which the respondent's organisation gained benefits from knowledge sharing tools and techniques at the following stages of the planning permission process:

- 'Refer to planning authority and guideline of planning requirements'
- 'Planning officer will refer to State Planning Department, National Physical Planning Council (NPPC)'

Respondents were asked to indicate (by ticking the appropriate number) the extent to which knowledge sharing tools and techniques are used in local authorities in the context of the planning permission process.

2. This question ascertained the frequency of use for the listed knowledge sharing technologies (tools) and techniques in the following two stages of the planning permission process:

- 'Refer to planning authority and guideline of planning requirements'
- 'Planning officer will refer to State Planning Department, National Physical Planning Council (NPPC)'

Respondents were asked to indicate (by ticking the appropriate number) the frequency of use for the listed knowledge sharing tools and techniques.

3. This question ascertained the effectiveness of the use of the knowledge sharing technologies (tools) and techniques in the following two stages of the planning permission process:

- ‘Refer to planning authority and guideline of planning requirements’
- ‘Planning officer will refer to State Planning Department, National Physical Planning Council (NPPC)’

The respondents were asked to indicate (by ticking the appropriate number) the effectiveness of the listed knowledge sharing tools and techniques.

4. This question investigated the main challenges associated with knowledge sharing in the following two stages of the planning permission process:

- ‘Refer to planning authority and guideline of planning requirements’
- ‘Planning officer will refer to State Planning Department, National Physical Planning Council (NPPC)’

Respondents were asked to indicate (by circling the appropriate number) the main challenges that were listed in the questions that act as challenges in effective knowledge sharing.

5. This question investigated the extent to which the listed factors are considered as critical success factors in effective knowledge sharing in the following two stages of the planning permission process:

- ‘Refer to planning authority and guideline of planning requirements’
- ‘Planning officer will refer to State Planning Department, National Physical Planning Council (NPPC)’

Respondents were asked to indicate (by ticking the appropriate number) how critical each critical success factor is (from the list of factors provided).

6. This question appraised the extent to which the listed resource variables have a positive impact on how knowledge sharing contributes to the following two stages of the planning permission process:

- ‘Refer to planning authority and guideline of planning requirements’
- ‘Planning officer will refer to State Planning Department, National Physical Planning Council (NPPC)’

Respondents were asked to indicate (by circling the appropriate number) the extent to which the listed resource variables have a positive impact on how knowledge sharing contributes.

7. This question indicated the level of contribution that knowledge sharing initiatives have at the following two stages of the planning permission process:

- ‘Refer to planning authority and guideline of planning requirements’
- ‘Planning officer will refer to State Planning Department, National Physical Planning Council (NPPC)’

Respondents were asked to indicate (by ticking the appropriate number) the level of contribution of the knowledge sharing initiatives.

8. This question asked respondents to rank initiatives by numbering the extent to which the listed knowledge sharing initiatives contribute to the listed performance measures in the planning permission process generally. Respondents were asked to rank the highest level of contribution to the listed performance measurements in the planning permission process generally.

Generally, respondents were asked to rate their opinion using a four-point Likert scale, i.e., 1= A very high level of exploitation, 2= high level of exploitation, 3 = low level of exploitation and 4= no exploitation at all (refer appendix 3). A four-point Likert scale was chosen because it allows for keeping the number of response options as small as possible and enables the respondents to make a useful choice from among the listed informative answers. Many researchers have suggested that questions about which nearly everyone has enough information to form some opinion should be stated without a no-opinion option (Synodinos, 2003; Scheaffer *et al.*, 1996; Hoinville *et al.*, 1978).

Questionnaire designers are advised to keep the number of options as small as possible (Tourangeau *et al.*, 2000). Synodinos (2003) suggested that questions about which nearly everyone has enough information to form some opinion should be presented without a no-opinion option. This is because for almost any question that is asked, some respondents will want to say that they do not know or have no opinion. Since such responses give no useful information about the question and essentially reduce the sample size, it is typical survey

practice to avoid using these options. The respondent, is therefore, forced to make a choice from amongst the listed informative answers.

3.9 Data analysis

This section discusses the data analyses employed for both the email postal questionnaire and the semi-structured interviews.

3.9.1 Data analysis for email postal questionnaires

The questionnaires were designed to gather responses in an unbiased manner (Refer section 3.8). According to Tourangeau (2000) the questions should ask information that respondents can readily access. Therefore, a question should be as clear and precise as possible so that all respondents interpret it as intended and all understand the same thing. As a general rule, questions should be easy to understand by respondents with little formal education.

The data from the questionnaire survey responses were then analysed using Statistical Package for Social Science (SPSS version 19) software. This provided ease of handling for the large set of data, by organising the data efficiently and dealing with the data with ease. Before the data were entered, identifying the data type was crucial, in order to devise the correct method to be used for analyses. The scale of measurement can be divided into four types: nominal, ordinal, interval and ratio.

- Nominal is a value that can be assigned a code in the form of a number where the numbers are simply labels or categorical variables, comprise categories that cannot be ranked or ordered, i.e., types of local authority.
- Ordinal refers to a set of categories that are organised in an ordered sequence, i.e., the ranking of degree of satisfaction.
- Interval, also called integer, is measured along a scale in which each position is equidistant from one another.

- Ratio refers to variables has all the property of an interval variables and the measurement there is always an absolute zero that is meaningful. This means that it can construct a meaningful fraction (or ratio) with a ratio variable.

According to Cho (1997), nominal and ordinal scales are categorical data or variables, while interval and ratio scales are continuous data. He added that the reason for types of data in the dataset is that the data analysis method differs according to the scale of measurement.

The most critical part of any data analysis is the initial data entry. If the data are entered wrongly then it will not be possible to analyse them properly. At the end of the data entry process and to ensure that the result of the test was accurate, the number of cases in each test was checked.

In this research, the data gathered from the questionnaire survey were categorical data. They were mainly ordinal and nominal data and no missing data were found in the data entry. Given the research questions to be answered and the nature of the variables, i.e., independent and dependent, both descriptive statistics and inferential statistics were used for the data analysis. Descriptive analyses are procedures used to summarise, organise and simplify data by displaying the information graphically or describing its central tendencies and how it is distributed. Mean value comparison and cross tabulation are some of the examples used in this research.

In contrast, inferential statistics are used to make claims about the populations that give rise to the data collected. According to Calkins (2005), inferential statistics try to provide inferred information about a population using information gathered by sampling. Spearman's correlation and Kruskal-Wallis are some of the inferential statistics used in this research. Details of the methods adopted for this research are given below.

3.9.1.1 Cronbach's alpha

According to Santos (1999) Cronbach's alpha is not a statistical test but a coefficient of reliability (or consistency). The alpha coefficient can range in value from 0 to 1 and may be used to describe the reliability of internal consistency of factors extracted from dichotomous (question with two possible answers) and multi point formatted questionnaire or scales. Ideally, the value of Cronbach's alpha should be above 0.7 (DeVellis, 2003) and the higher

the score the more reliable the generated scale. Wells and Wollack (2003) have made the interpretation of α level consistency.

Table 3.15: Interpretation of consistency

α value	Level of consistency
0.9	Consider shortening the scale
0.8 – 0.9	Very good
0.7 – 0.8	Respectable
0.65 – 0.7	Minimally acceptable
0.0 < 0.65	Unacceptable

3.9.1.2 Mean value comparison

Mean value is the average data set. The comparison of mean value of two or more independent samples (types of local authority) was done, which allows for the identification of some differences between the samples.

3.9.1.3 Null hypothesis testing

According to Lane (1993), the purpose of the null hypothesis is to test the viability of the null hypothesis in light of the experimental data. The null hypothesis typically corresponds to the reverse of what was actually believed.

3.9.1.4 Kruskal-Wallis test

The Kruskal-Wallis test, or as sometimes referred to, the Kruskal-Wallis H test, is a non-parametric alternative to a one-way between-groups analysis of variance that allows comparing the score on some continuous variables for three or more groups. It tests the null hypothesis that multiple independent samples come from the same population. In this research, the Kruskal-Wallis test for the k independent sample was used to test the hypothesis that responses of three types of respondent (city, municipal and district authority) do not vary

by comparison of the mean ranking score of the three groups of individual factors. The test statistic used is the chi-square value.

Since, most of the data from this research are nominal and ordinal. Some other methods were also used for measuring the relationship between variables.

- Ordinal-ordinal: cross tabulation (details will be discussed below) was used in conjunction with the chi-square as a test of statistical significance. Cramer's V is used to test the strength of association of the variables. The former is used for large tables in which the number of both rows and columns is greater than 2.
- Nominal-ordinal: same as above.

3.9.1.5 Cross tabulation

Cross tabulation is a type of contingency table. The cross tabulation table is the basic technique for examining the relationship between two categories of variables, possibly controlling for an additional layering of variables. In this research, the cross tabulation procedure was used to obtain tests of independence and measure the association and agreement for ordinal and nominal data.

3.9.1.6 Chi-square

The chi-square test or Pearson's chi-squared test is used to determine whether two categories of variables are related and compare the observed and expected frequencies in each category. To be significant, the value needs to be 0.05 or smaller.

3.9.1.7 Phi Coefficient

The phi coefficient is used for analysis of the relationship of two dichotomous variables. The phi coefficient is a correlation coefficient and can range from 0 to 1, with higher values

indicating a strong association between two variables. Cohen (1988) defined the levels of association between two variables where:

- Small effect = 0.10
- Medium effect = 0.30
- Large effect = 0.50

3.9.1.8 Cramer V

Cramer V is the measure of association, based on the chi-square. This test takes into account the degree of freedom. To determine which criteria to use, first subtract 1 from the number of categories in the row variables (R-1), and then subtract 1 from the number of categories in the column variables (C-1). According to Pallant (2007), for the row and column variables equal to 1 (for two categories) small = 0.01, medium = 0.30 and large = 0.50

3.9.2 Data analysis for semi-structured interviews

The data obtained from semi-structured interviews were tape recorded in an audio format with the consent of the participants from the local authorities. The researcher also wrote down, in short hand format, notes concerning the important replies from respondents. Audio recordings, which are the most common method of recording interview data, were chosen because they are easy, inexpensive and largely unobtrusive. It also ensures that the data are in permanent form, and, hence, can be subject to re-analysis and allow reliability checks.

The data were analysed using content analysis. Content analysis is a research technique that examines words and phrases within a wide range of texts (Leedy and Ormord, 2001). It enables the reduction of phenomena or events into defined categories so as to better analyse and interpret them.

Table 3.16: Advantages and disadvantages for content analysis

Advantages	Disadvantages
Its looks directly at the communication via texts or transcripts, and, hence, gets at the central aspect of social interaction.	Often devoid of theoretical base, or attempts to liberally draw meaningful inferences about the relationships and impacts implied in a study.
Allows a closer look at the text, which can alternate between specific categories and relationships and also statistically analyses the coded form of the text.	It can be extremely time consuming.
Provides insights into complex models of human thought and language use.	Is subject to increased error, particularly when relational analysis is used to attain a higher level of interpretation.
Allows the interpretation of texts for purposes, such as the development of expert system.	Often tends to consist of word counts.

Two major categories of content analysis were considered for this study: conceptual and relational analysis. The conceptual analysis is chosen for examination and the analysis of its occurrences within the text recorded. Terms may be implicit as well as explicit, it is important to clearly define implicit terms before the beginning of the counting process. Relational analysis, which seeks to go beyond such presence by exploring the relationships among the concepts identified in the text that pertains to knowledge sharing initiatives in this research, was deemed appropriate for this research.

The initial coding structure, might involve examining and reducing the amount of text to categories and coding for words or patterns, looking at predetermined and precisely defined KS technologies (tools) and techniques, challenges and critical success factors and issues in KS. During this process, major themes were identified and further analysis sought to locate these themes within the text of the data collection.

Then attempts to extract meaning from the text with reference to the thematic coding and identified locations within the transcript were undertaken. This is an iterative process, which means that the coded materials are examined repeatedly as new themes and ideas emerge. Lastly, these data were later refined, with the emergence of the new significantly improved coding hierarchy.

3.10 Reliability and validity analysis of the data

According to Antony *et al.* (2002) reliability for quantitative research is to provide an indication of the degree to which the measurement to evaluate the same thing is homogenous and consistent. While, Smithson, (2005) defined reliability as the extent to which a measure is free of random measurement error. There are four types of reliability (Tharenou *et al.*, 2007):

- Test-retest reliability – (also called stability test) is the extent to which a measure gives the same result for two or more repeated administrations.
- Inter-rater reliability – or concordance is the degree of agreement among raters.
- Other measures of reliability
- Internal consistency reliability – used for multi item measures. Typically measured by a statistic called Cronbach's alpha (refer to section 3.10.1)

The first three methods have major limitations and notto apply in this research because they require two independent administrations on the same sample (Nunnally, 1967). Furthermore, the last method is the most used form of reliability (refer section 3.10.1 Cronbach's alpha).

Validity is the extent to which a measure measures what it is supposed to measure. Collis and Hussey (2003) defined validity as the extent to which the research finding accurately represents what is really happening in the situation. It is important to understand that although a measure cannot be valid unless it is reliable it can be reliable but not valid. Reliability and validity apply to both quantitative and qualitative data.

There are four types of validity (Tharenou *et al.*, 2007):

- Construct validity – refers to whether a measure relates to the theoretical concept. It comprises two types: convergent and divergent validity. Both measures are assessed by determining whether the pattern of relationship in the empirical data matches those in the nomological network (i.e., the theoretical framework for what one is trying to measure, an empirical framework for how it is going to be measured, and specification of the linkages among and between these two frameworks) (Schwab, 2005).

- Criterion-related validity – (also called instrument validity) is used to demonstrate the accuracy of a measure by comparing with another measure or procedure that has been demonstrated to be valid.
- Content validity – this item is designed for the measure to adequately cover the domain of interest.
- Face validity – concerned with how a measure or procedure appears.

From the above discussion, the researcher has taken action to ensure the reliability and validity for this research by:

- Literature review – an extensive review of literature for all possible items to be included in the measurement has been performed. The construction of variables to measure the relevant concepts based on a series of key references. This aspect of validation process has been discussed in section 3.8 (designing and content of questionnaire).
- The questionnaire survey and interviews that were administered underwent a series of tests to ensure that they were not ambiguous and that the questions were easily understood. The test involved administration of a series of draft questionnaires among potential respondents and research colleagues, i.e., a former planning officer from a city authority, assistant planning officer from municipal authorities, assistant director from the Ministry of Housing and Local Government, and the Malaysian community living in the UK, comprising five practice planning officers and also five from academia.

3.11 Summary

This chapter attempted to describe in detail the methodological approach adopted in this study. The methodologies adopted (mixed method approach) comprised semi-structured interviews and a questionnaire survey. This research has employed explanatory sequential design with quantitative dominant mixed methods research. The research is used sequential timing started with interview and then survey questionnaires. The interviews were conducted with twenty (20) planning officers from three different local authorities in Malaysia: three (3) from the city, nine (9) from the municipal and eight (8) from the district authorities. This was further reinforced with an email and online questionnaire survey to triangulate the results. On the whole, the methodological approach proved successful. The research instruments applied have provided the kind of information needed for the research, information, which relates to knowledge sharing initiatives, organisational structure, culture, motivation, organisational resource implications, main challenges and also critical success factors for effective KS.

Therefore, it is recommended to other researchers who are interested in exploring about KS in other public sector or services or other industries or in doing knowledge sharing inter organisation, to use this present methodology.

CHAPTER 4. KNOWLEDGE SHARING TECHNOLOGIES (TOOLS) AND TECHNIQUES IN PLANNING PERMISSION PROCESS

4.1 Introduction

This chapter will present a discussion on, and an understanding of knowledge sharing tools and techniques. It will also highlight the distinction between knowledge sharing tools and techniques and the variety of tools and techniques that can be used to create or simulate the process of sharing knowledge in local authorities in Malaysia. It will discuss their benefits and how these contribute to the success of knowledge sharing within an organisation. Additionally, it also highlights the use of tools and techniques in the context of local authorities in Malaysia, especially in the planning permission process. Throughout, the chapter reflects on the findings in order to fulfil the research objectives:

To explore the nature of knowledge sharing tools and techniques in local authorities in the context of the planning permission process

To ascertain and document the frequency of use and extent of use of the main knowledge sharing tools and techniques in local authorities and their efficacy in the context of the planning permission process.

To ascertain the extent to which knowledge typology and different contexts impact upon the use and exploitation of knowledge sharing tools and techniques, and the efficacy of these knowledge sharing tools and techniques with respect to the planning permission process.

4.2 The Importance of Building Sustainable Knowledge within an Organisation

There is a consensus that knowledge in local authorities has to be sustainable and used, as knowledge has been recognised as an important aspect in human life. Individuals and organisations are starting to understand and appreciate knowledge as the most valued asset in an emerging competitive environment. The two greatest assets that an organisation has are people and knowledge in their workers' heads (Tobias, 2000). The process of practically creating, acquiring, capturing, sharing and using knowledge within a public sector organisation is the way it gains sustainability and a competitive edge. Knowledge management, therefore, provides strategies that help in retaining knowledge and for the LAM the better the knowledge base upon which public policies are built, the more likely the sector is to succeed. The true feedback from the benefits that the LAM gains from implementing knowledge management is evident in many cases, for example, in improving business performance (McAdam and Reid, 2000), improving the quality of service delivery (Yusof and Ismail, 2009), increased productivity (Cong and Pandya, 2003) or, in other words, it could reduce the cost of operations and improve customer service. It seems that the local authorities have recognised that knowledge is a powerful enabler that can increase efficiency in all areas. This focus is being driven by the accelerating rate of change in today's organisations as a whole.

4.3 Knowledge Sharing Tools (Technologies) and Techniques in local authority

Knowledge sharing is a process that involves people-to-people interaction and is one of the main knowledge management processes (Ryu *et al.*, 2003). Through knowledge sharing, individuals mutually exchange their knowledge and join together to create new knowledge (Skyrme and Amidon, 1997). Knowledge is a two-way process, which involves both supply and demand for the new knowledge. The use of knowledge sharing tools (technology) and techniques are to enhance and enable the sub process of knowledge sharing. The details of KS technologies (tools) and techniques are discussed in subsequent sections.

4.4 Knowledge Sharing Tools (Technologies)

Many authors consider KS technologies (tools) as very important enablers that support the implementation of knowledge sharing initiatives (Skyrme and Amidon, 1997; Anumba *et al.*, 2000; Egbu, 2000; Kankanhalli *et al.*, 2003). However, very few researchers have defined knowledge sharing technologies (tools). Ruggles (1997) described them as the technology used to enhance and enable the implementation of the sub-process of knowledge management (knowledge generation, codification and transfer). He added that the importance of IT tools was in terms of their quick evaluation, dynamic capabilities and high cost and also identified that not all knowledge sharing tools are IT-based. Although most authors use the term tools to mean technologies used for disseminating the sharing of knowledge, Egbu *et al.* (2003) and Al Ghassani (2002) differentiated between tools and techniques. The term tools in this research refer to technology that is associated with knowledge sharing and techniques refer to ‘non-IT tools’. Table 4.1 represents the main differences between KM techniques and KM technologies.

Table 4.1: Knowledge Management Tools

Knowledge Management Tools	
Knowledge Management Techniques (Non-IT Tools)	Knowledge Management Tools (IT Tools)
<ul style="list-style-type: none"> • Require strategies for learning • Require more involvement by people • Are affordable for most organisations • Are easy to implement and maintain • Are more focussed on tacit knowledge <p>Examples: Brainstorming, Communities of Practice (CoP), face-to-face interaction, recruitment, mentoring, training.</p>	<ul style="list-style-type: none"> • Require IT infrastructure • Require IT skills • Are expensive to acquire and maintain • Require sophisticated implementation and maintenance • Are more focussed on explicit knowledge <p>Examples: Data and text mining, groupware, Internet, extranets, knowledge bases, taxonomy, ontology.</p>

KM technologies rely on an information technology infrastructure and consist of a combination of hardware and software technologies. These hardware and software technologies are important for a KM system as they perform, and are a medium for storing, transferring and sharing knowledge. In respect of hardware, KM systems need personal computers or workstations to facilitate access to knowledge, and for a large organisation to be networked, it requires a powerful server. A complex communication infrastructure consists of hardware components and system software layers that control the various aspects of the architecture and structural design, which requires fibre optics to provide high speed to facilitate access to, and the sharing of knowledge (Lucca *et al.*, 2000). The advances of IT in LAM have made it easier to retrieve information, acquire, store and disseminate knowledge within a local authority. According to Hansen *et al.* (1999) there are two basic approaches to KS for which IT can provide support: codification and personalisation. With the codification approach, more explicit knowledge can be codified and stored in knowledge based systems, such as planning approval system, geographical information system and database system. Conversely, the personalisation approach relies on sharing knowledge between employees through direct person-to person contacts. Therefore, the main purpose of KS technologies (tools) include helping people share knowledge through databases, helping people locate each other and communicating to achieve complex knowledge sharing. Details of the types of KS technologies (tools) will be discussed below.

4.4.1 Types of KS technologies (tools) in local authorities

The use of KS tools enables the KS process and is a crucial component of the linkage of knowledge integration and information in organisations (Teece, 1998). Table 4.2 the nature of information technology involved in knowledge sharing. In order to build knowledge sharing capabilities, LAM must develop a comprehensive infrastructure that facilitates various types of knowledge and communication. With regard to technologies or tools that help employees to develop and gain knowledge, LAM has used various IT systems to facilitate knowledge sharing within their organisation. Some of the KS technologies (tools) used in the context of planning permission process in LAM are discussed below.

Table 4.2: Information technologies, involved in knowledge sharing

Knowledge conversion	Knowledge management process	Information technologies, supporting employees
Explicit-to-Explicit	combination	All information technologies, possessed by the organization
Tacit-to-Tacit	socialisation	<ul style="list-style-type: none"> • Face-to-face meetings and shared experiences (the most typical way in which tacit knowledge is built and shared) • Groupware-application software used for interpersonal interactions • Applications that support real-time online meetings, such as video and text-based conferencing, as well as synchronous communication and chat • Community of practice software (interaction of persons who have knowledge in a particular area) • The Tacit Knowledge Systems, Knowledge Mail product (e-mail analyzers, used to form an individual profile of personal qualification level and expertise focus)
Tacit-to-Explicit	externalisation	<ul style="list-style-type: none"> • Applied software, suitable for forming a shared mental model, then articulating through dialog • Collaboration systems and other groupware, specialized applications for brainstorming • Online discussion databases as a tool for capturing tacit knowledge and to apply it to solve immediate managerial problems • Newsgroups and similar forums
Explicit-to-Tacit	internalisation	<p>Technologies, used to form new tacit knowledge:</p> <ul style="list-style-type: none"> • Online learning • Variety of tools and applications support distance learning • Visualization tools of documents supported with subject based browsing and navigation, such as text-based conceptual trees, graphical visualizations, topographic maps (as a metaphor to represent the different subject themes by location, their relatedness by patterns and distance) • Visualization of documents in a large taxonomy or ontology

Source: Sarkiunaite and Kriksciuniene (2005)

4.4.1.1 Telephone

The telephone system mainly used when complicated issues demanding interactive discussion had to be solved urgently in LAM. It is a cheap, fast and provides a rich context when in discussion with an experienced person. Interactions between both parties provide a technique for converting tacit knowledge from one person to another's tacit knowledge. Ipe (2003) added knowledge sharing between individual is a process by which knowledge held by an individual is converted into form that can be understood, absorbed and used by other individuals. Pierce (2002) added that

conversations are the only effective means of sharing knowledge. This is because real time involvement avoids misunderstandings and complaints. According to Davenport (2006) effective knowledge sharing makes sure that the right information reaches the right people at the right time.

4.4.1.2 Knowledge based expert system (Planning approval system)

Knowledge based expert system can be defined as a human-centered and as having its roots in the field of artificial intelligence (AI) and imitated human knowledge in computer system (Wiig, 1994 in Hendriks and Vriens, 1999). However, according to Lucas and Van der Gaag (1991) in Hendriks and Vriens (1999) defined it through the characteristics in the architecture of KBS. They divide into into four parts; a knowledge base, an inference engine, knowledge engineering tools and a specific user interface. Dhaliwal and Benbasat (1996) in Hendriks and Vriens (1999) added KBS user interface should allow 'why-' and 'how'- questions, having the system explain its behaviour when dealing with a given problem.

The use of a planning approval system is to facilitate the procedures to control and monitor city development (Yaakup *et al.*, 2007). According to Ludin *et al.* (2007) explained that data is classed as raw or as discerned elements and when these elements are patterned in a certain way, data becomes transformed into information. When rules or heuristics are applied to information, knowledge is then created as actionable information for producing some value added benefit. This system integrates several subsystems that execute specific functions while, at the same time, interacting with one another by sharing knowledge sources (Yaakup *et al.*, 2004).

4.4.1.3 Geographical Information System

According to Worboys (1995) geographic information system is a 'computer-base information system that enables capture, modelling, manipulation, retrieval, analysis and presentation of geographically referenced data'. A Geographical Information System (GIS) should be built from the systematic collection and specification of

geographic entities, their properties and relations. Therefore, ontologies in an information system describes a hierarchy of concepts related by subsumption relationships; in more sophisticated cases, suitable axioms are added in order to express other relationships between concepts and to constrain their intended interpretation (Guarino, 1998). Fonseca and Egenhofer (1999) proposed the creation of software components from ontologies as a way to share knowledge and information in GIS.

4.4.1.4 Internet

The internet enables teams to share knowledge and work remotely in the organisation. The internet mode of communication mainly supports decentralised networks of communication. E- Collaboration (video conferencing, group support systems, distance education tools and more commonly, email have evolved exponentially. Xu *et al.*, (2011) added most of knowledge sharing tools help people work together and share knowledge, through geographically dispersed teams perhaps coming together for virtual meeting across great distances, which results in: tremendous time and cost savings, great decrease in travel requirements, faster and better decision making, and improved communications flow throughout the organization. Hence, internet modify human interactions and, indeed, turn the classic network of face-to-face relationships into a network of virtual relationships. A study undertaken by Salleh and Ahmad (2005) identified that the use of the Internet, email and intranet is important for sharing knowledge and as an electronic mode of communication channel in LAM.

4.4.1.5 Intranet

Intranets have emerged as one of today's most effective ways of sharing knowledge in organisations. The main purpose of an intranet is to share organisation knowledge and computing resources among employees. Research has been undertaken on the intranet as a knowledge management tool and the intranet can be used to generate, transmit,

share, store and integrate knowledge (Venkatesh and Speier, 2000; Davenport and Pealsson, 1998).

In LAM, a simple intranet-based system allows for virtual conversations among all employees. This allows the authorities to generate a collaborative environment for its workforce, which it felt was the greatest contribution of its information system. Lotus note R8 is one of the examples of an intranet-based system used in LAM. According Robertson *et al.* (2001) define that Lotus Notes has been developed and used in different ways for such supporting knowledge sharing such as discussing and sharing ideas, experience, information and knowledge with other individuals and groups in the organisation.

4.4.1.6 Electronic Office Databases

Electronic office databased provides a mean to organise and effectively display important organisation information from files, folders and etc. Is also allowing organisation to exchange data between their employees and stakeholders no matter where they are located. Knowledge is recorded in a formal way and includes elements, such as gathering existing knowledge and establishing procedures, to reflect information requirements. According to Duffly (2001) an electronic office databases is “process that extracts data captured by multiple business applications and organises it a way that is meaningful to the business”. Honeycutt (2000) identified that knowledge workers must use KM systems and document their knowledge in order for KM to work. He added that the ability of data warehouse, databases and access tools to handel information and transfer it into knowledge is the key to KM system success. Laudon and Laudon(2003) went further to explain that KM systems “support processes for discoveringand codifying knowledge, sharing knowledge, and distributing knowledge, as well asprocesses for creating new knowledge and integrating it into the organization.”

The most powerful databases are to make knowledge accessible in the workplace and makeinformation available and accessible through the network so that employees can perform their daily duties and newcomers can internalise the knowledge. The use of

an Electronic Document Management System (EDMS) is a means by which filing systems are transformed from physical to electronic media (Ahmad *et al.*, 2006) and also reduce redundancy. The implementation of such a system makes it possible to easily allocate and access the contents of the required documents. Such a database provides the means for updating the information base when the Town Planning Committee makes a decision and a planning permission is granted.

4.4.1.7 OSC Portal

The OSC portal is an online database system that produced vast amounts of web-based knowledge. OSC portal has been launched in 2007 by Ministry of Housing and Local Government with the view to speed up, coordinate and facilitate the process of land development approval, applications for planning permission, the development plan, earthworks' plans, roads and drainage plans and other plans related to the proposed development and thus to build up a more effective transfer between tacit and explicit knowledge. This portal, as well as containing structured information, contains knowledge networks and communities, discussion forums, and collaborative workspaces to better encourage, and transfer a more 'spontaneous' exchange of tacit knowledge. (MHLG, 2007b)

Through OSC portal, activities are undertaken by employees, knowledge is externalised and shared in order to improve the performance and productivity of an organisation. Such an activity verifies, McDermott's(1999) comment that IT can facilitate the conversion of tacit-to-explicit knowledge.

As discussed above, it seems that knowledge sharing technologies in LAM depend heavily on IT and are employed in an interactive way by the users, and, thus, the role of people in knowledge sharing technologies are vital to their success. There is a major debate among researchers about whether information technology can have a major role in knowledge sharing technologies among individuals in the organisation. Some, particularly those who conducted their research in this area, insist that knowledge sharing through using IT is too limited. Flanagan (2002) and Hislop (2001) looked at the area of sharing tacit knowledge. Flanagan (2002) added tacit knowledge can only be transferred and shared successfully

through demonstration, facilitated by face-to-face contact. The nature of tacit knowledge as a highly personal knowledge that resides in human brains makes it difficult to be shared not only by language but also by IT.

In contrast, some of the researchers admit that IT can contribute to knowledge sharing. They view knowledge as being on a continuum that can have a different degree of tacitness (Jasimuddin *et al.*, 2005; Chennamaneni and Teng, 2011). In their view, IT can easily facilitate sharing of knowledge that has a low to medium degree of tacitness and fairly support the sharing of knowledge with a high degree of tacitness.

In addition, Nonaka and Takeuchi's (1995) knowledge creation theory, asserts that knowledge sharing includes; tacit-to-tacit conversion (socialisation), tacit-to-explicit (externalisation), explicit to tacit (internalisation) and explicit to explicit (combination). Nonaka *et al.* (2000), in an update to their original model stressed, that knowledge conversions can take place in a virtual "ba" (space) too. In other words, they believed in the possibility of sharing knowledge through ICT support. This particular point is important since the level of expertise of individuals is important for using and exploiting particular knowledge sharing technologies for managing knowledge.

In Malaysia context, the launch of Electronic Government and the establishment and development of the Multi-media Super Corridor (MSC) exemplify the aspiration to employ multi-media technologies in order to reinvent the way government operates (Maarof, 1998). In order to create an environment that is conducive to efficient public service, the Malaysian government has initiated policies, such as the Smart Partnership Programme (SPP) to facilitate the application of a common system across agencies. Open Source Software (OSS) is intended to increase interoperability among the Information and Communication Technology (ICT) systems and accelerate growth in the local ICT industry (EPU, 2006).

4.5 Knowledge sharing techniques

Knowledge sharing techniques do not depend on technologies but in certain cases technology can be used as a support for knowledge sharing techniques. Knowledge sharing techniques can take place through brainstorming, face-to-face meetings, training, recruitment and

mentoring. The importance of knowledge sharing techniques is due to several factors. First, knowledge sharing techniques are affordable to most organisations and there is no need for a sophisticated infrastructure. However, in certain cases it requires more resources (financial and time) than others; for example, training requires more resources than face-to-face interaction. Second, knowledge sharing techniques are easy to implement and maintain due to their simple and straightforward nature. Third, knowledge sharing techniques focus on retaining and increasing the organisation's tacit knowledge, a key asset for organisations.

4.5.1 Types of KS Techniques used in local authorities

In LAM, knowledge sharing techniques are not new, and have been implemented to facilitate the sharing of knowledge within an organisation. Some of the techniques used are:

4.5.1.1 Non-electronic Work Manual Documents

According to Egbu (2004) report, project summaries and non-electronic work manual document are some of the factors that promote knowledge sharing. He added that tacit knowledge of employees is transferred into explicit knowledge form it can be codified and store in the organisational knowledge base. Other example, in Siemens Best Practices case book, refer to a number of organisations devoted on their staff sharing 'best practices' using document repositories (such as reports of past successful or failed projects) (Davenport and Probst, 2002 in Papoutsakis (2007)).

The concept of coding, storing and transmitting knowledge in the Malaysian public sector is not new. For example, job manuals providing procedures, filing systems, ISO 9002, Desk File, work flow and databases have served for a number of years in LAM.

4.5.1.2 Training

Training is one of the concepts of knowledge harvesting. It allows the tacit knowledge or know-how of experts and top performers in an organisation to be captured and documented. Training is about trying to make some of the tacit knowledge more

explicit. Its aim is to help organisations make better and wider use of their existing knowledge by extracting it from the heads of a few key people and making it available to a much wider range of people.

Training in LAM can be divided into two sections: first, internal training, which comprises departmental training providing technical or practical knowledge and enhancing ability in a specific working field through training programmes developed by the department concerned as well as the on-the-job training that is conducted while performing regular job activities. Second, there is external training where personnel may join training programmes organised by other national or international bodies or may be attached to certain local municipal and agencies (training by assignment).

4.5.1.3 Communities of Practice (a group of people who share an interest)

Wenger *et al.* (2002) define a community of practice as “a group of people who share a concern, a set of problems, or a passion about a topic, and who deepen their understanding and knowledge of this area by interacting on an ongoing basis”. CoPs often focus on sharing best practices and creating new knowledge to advance a domain of professional practice. CoPs have been identified as effective loci for the creation and sharing of knowledge (Lave and Wenger 1991).

CoPs are another approach implemented in LAM, which consist of a group of people with different skill sets, development histories and background experience that work together to achieve commonly shared goals (Ruggles, 1997). CoP relies on groups for collective thinking and problem solving and collaborative learning (Dillenbourg, 1999).

4.5.1.4 Brainstorming Session

There are various techniques for encouraging creative thinking and generation of innovative ideas by group. Brainstorming sessions are one of the best known, in which people propose as many ideas as possible to solve a problem. The socialisation process (example through brainstorming) enables individual to acquire tacit

knowledge and develop new knowledge by sharing experiences usually of a technical in nature. Tacit knowledge is also shared through brainstorming and develop new knowledge from this sessions (Egbu, 2004).

To encourage people to contribute freely, members of the group are not allowed to criticise ideas until the brainstorming session has finished. In Malaysian government especially in LAM; brainstorming sessions are normally used for high impact projects, such as government projects and foreign investors.

4.5.1.5 Face-to-face interaction

This is a traditional approach for sharing knowledge within an organisation, especially in the context of tacit knowledge owned by employees. Face-to-face interactions are informal and powerful approach that helps in increasing the organisation's memory developing trust and encouraging effective learning (Ruikar *et al.* 2007). Conversation through face to face represent a major means of how people interact, share knowledge and exchange knowledge. Lang (2001) added face-to-face interactions provide strong social ties.

Face-to-face interaction also helps in increasing an organisation's memory and developing trust and relationships between employees. Instances of face-to-face interactions are departmental meetings, organisational meetings and workshops, all of which help the process of sharing knowledge within LAM (Salleh *et al.*, 2009).

4.5.1.6 Project reviews

Project reviews are a valuable mechanism for bringing people and their knowledge together (discussing relevant experience, both good and bad from projects) so that discussions can be structured around specific project issues. Project reviews help to capture and articulate tacit knowledge from the project members (Smith & Bollinger, 2001). During the project, the project members are asked to capture the knowledge gained during the project. According to Scarbrough *et al.*, (2004) team members can

reflect any issues or mistakes while the project is still occurring. If learning is an outcome, then making mistakes can be worthwhile (Zedtwitz, 2002).

4.5.1.7 Mentoring and Coaching

The meaning of mentoring is to help and give advice to someone who has less experience whilst coaching is to give special class to one person or a small group (Cambridge dictionaries online). Mentoring and coaching has become a valuable tool that all professions are using to develop leaders and enhance leadership skills. Ideally, mentoring and coaching can be caring, sharing and helping relationships that enrich the life of both of the people involved. Mentoring and coaching are used to encourage senior experienced employees to work alongside their junior colleagues in order to offer support and advice to them. The advantages of applying mentoring and coaching are that knowledge is retained and spread in an organisation, and is an effective way of encouraging learning that is appreciated by junior staffs that are less experienced. According to ERIC Digest (1995) in mentoring and coaching programs, outstanding experienced employees who can explain policies and practices, share methods and materials and help solve problems to their novice employees. Mentors impart their tacit knowledge, as well as demonstrate their skills and exemplary behaviors (Hassan and Handzic, 2003). Therefore, mentoring is a means to support professional growth and development, which in turn empowers the mentee, and thus benefits the organization (Bush and Middle Wood, 1997). According to Van Slyke and Van Slyke (1998) in Karkoulia et al. (2008) highlighted that mentorship programs, both formally and informally, have been associated with positive organisational experiences and career success.

4.5.1.8 Workplace environment

A good workplace environment or design can encourage people to create, share and use knowledge to the benefit of the organisation. It can also improve the organisational culture, reduce stress, improve motivation, and increase the

productivity and morale of the employees. Knowledge sharing can be enhanced by interact with other people through face-to-face communication such as discuss, dialogue, or simply just ask a question. Simultaneously, it establishes social relations between employees. In addition, the environment layout can specifically stimulate the process of knowledge sharing through open areas and special meeting places. The Malaysian government has made an effort to facilitate such a working environment through the adoption of the open plan office (Government of Malaysia, 1982).

The use of KS techniques in local authorities depends on their resources (manpower, financial and time). City and municipal authorities have huge allocations of resources to equip them with sufficient facilities to enhance their performance in relation to the ever-increasing demands from their population (Singaravelloo and Subramaniam, 2006).

4.6 The nature of knowledge sharing tools (technologies) and techniques in local authorities in Malaysia

As mentioned earlier in section 2.3.3 (knowledge intensive organisation), the works and tasks in local authorities are dynamic and complex where highly professional departments are structured to mass produce bureaucratic services with a defined department for each service, and an administrative hierarchy of control with a set of procedures for uniformity of treatment, and groups of professionals to perform the tasks. In addition, the planning permission process involves complex procedures and various stages (see Table 2.6: The Planning Permission Process within Malaysian Local Authorities). The knowledge employees possess is closely linked to the physical and cognitive activities they undertake, and embedded in the social context in which the activities occur. According to Tobias (2000), two of the greatest assets that an organisation has are the people and the knowledge in their workers' heads. This perspective is the key issue and the most difficult task for the management is to link together and coordinate the organisational knowledge. This critical knowledge is only available to the LAM as long as employees are willing to share and cooperate. Therefore, the challenge for LAM is to capture and share this competitive knowledge through effective knowledge sharing strategies and promote knowledge sharing.

KS tools and techniques in planning permission process

The effective management of organisational knowledge is formed through unique patterns of interaction between knowledge sharing tools (technologies) and knowledge sharing techniques in an organisation. It can be argued that the use of KS tools and techniques support or aid in creating, sharing and using knowledge in the organisation. The table below shows the nature of knowledge sharing tools (technologies and techniques that have been used in the planning permission process.

Table 4.3: The types of knowledge domain, knowledge sharing tools (technologies) and techniques and people involved in the planning permission process.

Process of planning permission process	Task	Type of knowledge	References	Knowledge domain	Type of knowledge sharing tools (technologies) used	Types of knowledge sharing techniques used	People involve
Application from applicant/ Open file	<ol style="list-style-type: none"> 1. Land Assessment Receipt 2. Planning Permission Report 3. Layout plan, landscape, contour 4. List of neighbouring landlord (surrounding lots) 5. Proposed road name, 	Explicit knowledge	<ol style="list-style-type: none"> 1. Desk File Workflow 2. ISO Document 3. Local authority guideline 4. National land code procedure/ act 5. Government circulations 6. Minute meeting (Local authority) 	<ol style="list-style-type: none"> 1. Planning knowledge 2. Legislative knowledge 3. Environmental Knowledge 4. Urban design knowledge 5. Technology knowledge 6. Communication knowledge 7. Process, social and experimental knowledge 8. Personal Knowledge 	<ol style="list-style-type: none"> 1. Telephone 2. Office databases 3. OSC Portal 4. Geographical Information System 	<ol style="list-style-type: none"> 1. Discussion 2. Formal meeting 3. Local authority guideline/document 4. Job rotation 	<ol style="list-style-type: none"> 1. Technical Assistance 2. Technician 3. Administration Clerk
		Tacit Knowledge	<ol style="list-style-type: none"> 1. Know-how (skill or capabilities) 2. Know-why (scientific knowledge of the principle and law of nature) 3. Knowledge-where (ability to find right information) 4. Know-what (accumulation of fact) 5. Know-who (information about who know what) 				

Process of planning permission process	Task	Type of knowledge	References	Knowledge domain	Type of knowledge sharing tools (technologies) used	Types of knowledge sharing techniques used	People involve
Refer to planning authority and guideline of planning requirement	<p>Comply with local authority local plan:</p> <ol style="list-style-type: none"> 1. Local authority policies 2. Guidelines (zoning, density, road-widening line community requirements, preservation and conservation of environmental sensitive zones, infrastructure and utility requirements) <p>Comply with structure plans:</p> <ol style="list-style-type: none"> 1. State policy development plan including (land used, social economic, regional framework and environment) <p>Comply with:</p> <ol style="list-style-type: none"> 1. Act 172 (Town and Country Planning Act, 1976) 2. Act 133 (Street, drain and building Act, 1974) 3. Act 171 (Local Government Act, 1976) 4. Act 56 (National Land Code 1965) 	Explicit knowledge	<ol style="list-style-type: none"> 1. ISO Document 2. Local authority guideline 3. National land code procedure/ act 4. Government circulations 5. Minute meeting (Local authority) 6. Government act 7. Local and structural plan report 	<ol style="list-style-type: none"> 1. Planning Knowledge 2. Legislative knowledge 3. Technology knowledge 4. Environmental Knowledge 5. Urban design Knowledge 6. Process, social and experimental knowledge 7. Communication knowledge 	<ol style="list-style-type: none"> 1. Telephone 2. Office databases 3. OSC Portal 4. Internet 5. Intranet 6. Geographical Information System and Planning approval system 	<ol style="list-style-type: none"> 1. Discussion 2. Formal meeting 3. Local authority guideline/document 4. Job rotation 5. Project review 6. Brainstorming 7. Communities of Practice 8. Training 9. Mentoring 	<ol style="list-style-type: none"> 1. Head of Planning Department 2. Planning officer 3. Assistant Planning Officer 4. Administration Clerk
		Tacit Knowledge	<ol style="list-style-type: none"> 1. Know-how (skill or capabilities) 2. Know-why (scientific knowledge of the principle and law of nature) 3. Knowledge-where (ability to find right information) 4. Know-what (accumulation of fact) 5. Know-who (information about who know what) 				

KS tools and techniques in planning permission process

Process of planning permission process	Task	Type of knowledge	References	Knowledge domain	Type of knowledge sharing tools (technologies) used	Types of knowledge sharing techniques used	People involve
*Written notice to neighbouring landlords (surrounding lots)	1. Inform the neighbouring landlord regarding new development near their lot. 2. Act 172 (Town and Country Planning Act, 1976)-Section 21 act 172 (Town and Country Planning Act, 1976)	Explicit knowledge	1. ISO Document 2. Desk File Workflow 3. Local authority guideline 4. Town and Country Planning Act 5. Government circulations 6. Minute meeting (Local authority)	1. Planning Knowledge 2. Legislative knowledge 3. Technology knowledge 4. Environmental Knowledge 5. Urban design Knowledge 6. Process, social and experimental knowledge 7. Communication knowledge 8. Negotiation Knowledge	1. Telephone 2. Office databases 3. OSC Portal	1. Discussion 2. Formal meeting 3. Local authority guideline/document 4. Project review 5. Training 6. Mentoring 7. Cross-Functional Teamwork	1. Head of Planning Department 2. Planning officer 3. Assistant Planning Officer 4. Building and Civil Engineer
		Tacit Knowledge	1. Know-how (skill or capabilities) 2. Know-why (scientific knowledge of the principle and law of nature) 3. Knowledge-where (ability to find right information) 4. Know-what (accumulation of fact) 5. Know-when (sense of timing) 6. Know-who (information about who know what)				

*Application with local plan follows this stage

Process of planning permission process	Task	Type of knowledge	References	Knowledge domain	Type of knowledge sharing tools (technologies) used	Types of knowledge sharing techniques used	People involve
**Planning officer will refer to : • State Planning Department • National Physical Planning Council	1. Check with local authority local plan and structure plans if any 2. Comply with ; • Subsection 22 (2A) Act 172 (Town and Country Planning Act, 1976) • Development involves area on top or hillside, area as sensitive environment. • Development population which exceed 10,000 people or covered area which exceed 100 hectares or both	Explicit knowledge	1. ISO Document 2. Local authority guideline 3. Town and Country Planning Act 4. Government circulations 5. Minute meeting (Local authority) 6. Local and Structural Plan Report	1. Planning Knowledge 2. Legislative knowledge 3. Technology knowledge 4. Environmental Knowledge 5. Urban design Knowledge 6. Process, social and experimental knowledge 7. Communication knowledge 8. Negotiation Knowledge	1. Telephone 2. Office databases 3. OSC Portal 4. Internet 5. Intranet 6. Geographical Information System and Planning approval system	1. Discussion 2. Formal meeting 3. Local authority guideline/document 4. Cross-functional Teamwork 5. Project review 6. Brainstorming 7. Communities of Practice 8. Training 9. Mentoring	1. Head of Planning Department 2. Planning officer 3. Building and Civil Engineer 4. State Planning Officer
		Tacit Knowledge	1. Know-how (skill or capabilities) 2. Know-why (scientific knowledge of the principle and law of nature) 3. Knowledge-where (ability to find right information) 4. Know-what (accumulation of fact) 5. Know-who (information about who know what)				

**Application without local plan will follow this stage

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Process of planning permission process	Task	Type of knowledge	References	Knowledge domain	Type of knowledge sharing tools (technologies) used	Types of knowledge sharing techniques used	People involve
Hearing	<ol style="list-style-type: none"> 1. Check with local authority local plan and structure plans if any 2. Comply with ; <ul style="list-style-type: none"> • Subsection 22 (2A) Act 172 (Town and Country Planning Act, 1976) • Development involves area on top or hillside, area as sensitive environment. • Development population which exceed 10,000 people or covered area which exceed 100 hectares or both 	Explicit knowledge	<ol style="list-style-type: none"> 1. ISO Document 2. Local authority guideline 3. National land code procedure/ act 4. Government circulations 5. Minute meeting (Local authority) 	<ol style="list-style-type: none"> 1. Planning Knowledge 2. Legislative knowledge 3. Technology knowledge 4. Environmental Knowledge 5. Urban design Knowledge 6. Process, social and experimental knowledge 7. Communication knowledge 8. Negotiation Knowledge 	<ol style="list-style-type: none"> 1. Telephone 2. Internet 	<ol style="list-style-type: none"> 1. Discussion 2. Fomal meeting 3. Local authority guideline/document 4. Project review 5. Brainstorming 6. Training 7. Mentoring 8. Cross-functional Teamwork 	<ol style="list-style-type: none"> 1. Head of Planning Department 2. Planning officer 3. Legal Officer
		Tacit Knowledge	<ol style="list-style-type: none"> 1. Know-how(skill or capabilities) 2. Know-why (scientific knowledge of the principle and law of nature 3. Knowledge-where(ability to find right information) 4. Know-what (accumulation of fact) 5. Know-when (sense of timing) 6. Know-who (information about who know what) 				

Process of planning permission process	Task	Type of knowledge	References	Knowledge domain	Type of knowledge sharing tools (technologies) used	Types of knowledge sharing techniques used	People involve
Accept Condition comment and coordination	<ol style="list-style-type: none"> 1. Prepare for comment and report 2. Acknowledge the application to applicant <ul style="list-style-type: none"> • Sending letter and email • Record the application 	Explicit knowledge	<ol style="list-style-type: none"> 1. ISO Document 2. Desk File Workflow 3. Local authority guideline 4. Government circulations 5. Minute meeting (Local authority) 	<ol style="list-style-type: none"> 1. Legislative knowledge 2. Technology knowledge 3. Process, social and experimental knowledge 4. Communication knowledge 	<ol style="list-style-type: none"> 1. Telephone 2. Office databases 3. OSC Portal 4. Geographical Information System 5. Planning approval system 	<ol style="list-style-type: none"> 1. Discussion 2. Fomal meeting 3. Local authority guideline/document 4. Project review 5. Brainstorming 6. Training 7. Mentoring 	<ol style="list-style-type: none"> 1. Planning officer 2. Assistant planning officer 3. Technician 4. Administration Clerk
		Tacit Knowledge	<ol style="list-style-type: none"> 1. Know-how(skill or capabilities) 2. Knowledge-where(ability to find right information) 3. Know-what (accumulation of fact) 4. Know-when (sense of timing) 5. Know-who (information about who know what) 				

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Process of planning permission process	Task	Type of knowledge	References	Knowledge domain	Type of knowledge sharing tools (technologies) used	Types of knowledge sharing techniques used	People involve
Written instruction to applicant change the plan	<ol style="list-style-type: none"> Submission written instruction to applicant any change to the plan Comply with ; Subsection 21(3) and (4), Act 172 (Town and Country Planning Act, 1976) 	Explicit knowledge	<ol style="list-style-type: none"> ISO Document Desk File Workflow Local authority guideline Government circulations Minute meeting (Local authority) 	<ol style="list-style-type: none"> Legislative knowledge Technology knowledge Process, social and experimental knowledge Communication knowledge 	<ol style="list-style-type: none"> Telephone Office databases OSC Portal Geographical Information System Planning approval system 	<ol style="list-style-type: none"> Discussion Local authority guideline/document Project review Brainstorming Training Mentoring 	<ol style="list-style-type: none"> Planning officer Assistant planning officer Administration Clerk
		Tacit Knowledge	<ol style="list-style-type: none"> Know-how(skill or capabilities) Knowledge-where(ability to find right information) Know-what (accumulation of fact) Know-when (sense of timing) Know-who (information about who know what) 				

Process of planning permission process	Task	Type of knowledge	References	Knowledge domain	Type of knowledge sharing tools (technologies) used	Types of knowledge sharing techniques used	People involve
Application consider withdraw if not comply with any written instruction within 7 days	<ol style="list-style-type: none"> Acknowledge the applicant: <ul style="list-style-type: none"> Sending letter and email Record the application Sending reminder letter 	Explicit knowledge	<ol style="list-style-type: none"> ISO Document Desk File Workflow Local authority guideline Government circulations Minute meeting (Local authority) 	<ol style="list-style-type: none"> Technology knowledge Process, social and experimental knowledge Communication knowledge 	<ol style="list-style-type: none"> Telephone Office databases OSC Portal Geographical Information System and Planning approval system 	<ol style="list-style-type: none"> Discussion Formal meeting Project review 	<ol style="list-style-type: none"> Planning officer Assistant planning officer Administration Clerk
		Tacit Knowledge	<ol style="list-style-type: none"> Knowledge-where(ability to find right information) Know-when (sense of timing) 				

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Process of planning permission process	Task	Type of knowledge	References	Knowledge domain	Type of knowledge sharing tools (technologies) used	Types of knowledge sharing techniques used	People involve
Prepare certificate paper for One-Stop Centre	1. Submission written instruction to applicant any change to the plan	Explicit knowledge	<ol style="list-style-type: none"> 1. ISO Document 2. Desk File Workflow 3. Local authority guideline 4. Government circulations 5. Minute meeting (Local authority) 	<ol style="list-style-type: none"> 1. Legislative knowledge 2. Technology knowledge 3. Process, social and experimental knowledge 4. Communication knowledge 	<ol style="list-style-type: none"> 1. Telephone 2. Office databases 3. OSC Portal 	<ol style="list-style-type: none"> 1. Formal meeting 2. 	<ol style="list-style-type: none"> 1. Head of Planning Department 2. Planning Officer 3. Administration Clerk
		Tacit Knowledge	<ol style="list-style-type: none"> 1. Knowledge-where (ability to find right information) 2. Know-what (accumulation of fact) 3. Know-when (sense of timing) 				

The above table (Table 4.3) shows the nature of the knowledge sharing tools and techniques in the planning permission process, both tacit and explicit. However, the importance of knowledge in LAM and the different types of knowledge are also perceived differently within the planning permission process. These two characteristics of the nature of knowledge, tacitness and explicitness, and the value attributed to each task of these processes have a significant influence on the way knowledge sharing tools and techniques are used. The importance of the flow of knowledge around an organisation was expressed by Nonaka and Takeuchi (1995).

Lam (2000) found three main areas for the critical differences between these two types of knowledge.

- Codifiability and mechanisms for transferring knowledge
- Method for acquisition and accumulation
- Potential for aggregation and modes of appropriation

The inference that can be drawn from this result (Table 4.3) is that knowledge exists in different forms (tacit and explicit). Explicit knowledge can be codified, abstracted and stored. It can also be understood and shared without knowing the subject. In LAM most of the explicit knowledge used for the planning permission process includes ISO documentation, desk file flow workflow, local authority guidelines, National Land Code Act and other official documents that are also generated through logical deduction and acquired from formal training (In-house or inter-organisation). In contrast, tacit knowledge used for the

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planning permission process is through formal meetings, face-to-face discussion and teamwork collaboration. The implications from this result is that tacit knowledge is more important because in the planning permission process implementation most of the knowledge used is know-how, know-why, know-where and know-when. Such knowledge is implemented when there is any dispute. Therefore, it is recommended that planning officers should try to ensure that tacit knowledge within their organisation be made explicit or transformed to explicit knowledge; a supportive work environment, cost effective technology and user-friendly are some of the key enablers to create and exchange the flow and use of knowledge.

In the semi-structured interviews, the subject of the nature of knowledge sharing tools and techniques was raised in different contexts, i.e., types of KS tool and technique used, how and when they are used. This stimulated responses about the nature in different contexts and different local authorities. The following analysis reflects the nature of knowledge sharing tools (technologies) and techniques in local authorities. Table 4.3 shows a list of KS technologies (tools) and techniques in local authorities. While, in Table 4.4 and 4.5 are the details of the usage of KS technologies (tools) and techniques in local authorities.

Table 4.4: List of knowledge sharing tools (technologies) and use in local authorities

	City (N=3)	Municipal (N=9)	District (N=8)
KS Technologies (Tools)			
Telephone	3	9	8
Internet	3	9	7
Intranet	3	8	6
Planning Approval System	3	7	4
Geographical Information System	3	7	4
Office databases	3	7	2
OSC Portal	3	8	5

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In support of the qualitative findings regarding knowledge sharing tools (technologies):

Table 4.5: The extent of use of the main KS technologies (tools) in the planning permission process

KS technologies (tools)	Use	City (N=3)	Municipal (N=9)	District (N=8)
Telephone	Communicating medium and sharing knowledge	3	9	8
Internet	Searching information and send email	3	9	7
Intranet	Facilitates working in groups	3	8	6
Planning approval system and Geographical Information System	Stores, analyses, manages and presents data	3	7	4
Office databases	Keeps applicants' information	3	7	2
OSC Portal (Develop by MHLG)	Electronic submission and processing for development control	3	8	5

Table 4.5 indicates the various uses of the main KS technologies in local authorities; furthermore, information from city and municipal authorities shows that most of the KS technologies (tools) are used to execute the tasks for the planning permission process as compared with the district authorities. In the district authorities, the telephone is the most commonly used technology (tools) to obtain basic information and make general enquiries regarding their tasks.

These were supported by the interviewees from the city, municipal and district authority.

The interviewee of HDPC 1 said that, *“GIS is used to capture, store and analyse, manage and present data with reference to geographic location data.....it is normally used to check or investigate the information from the application to see if it meets the regulation”*

The interviewee of HDO 1 said that, the *“Planning approval system is normally used in conjunction with GIS.....this system is used to manage the development of land and building in our local authority”*

The interviewee of HDPM1 said that, *“....OSC Portal is an electronic platform (web-base). This portal helps officers in the planning and OSC department to synchronise the information and also as two-way communication to discuss development control”*

The interviewee of HDPM4 said that, *“.....office database systems are used to organise and retrieve large amounts of data....they are also linked to all departments to share the information and are used for further action.....”*

The interviewee of HDPD1 said that, *“Facilities such as planning approval and GIS are not available in our department telephone is more effective to share knowledge”*

The interviewee of HDOD1 said that, *“Even though our department has a planning approval system and geographical information system... it is difficult to operate these systems.....lack of expertise and under the pressure of increased job tasks and delivery deadlines...and telephone is the most popular tool to make general enquiries regarding our work”*

The inference, which can be drawn from this result (Table 4.4 and 4.5), is that there is a lack of use and limited extent of use of technologies in district councils compared to city and municipal authorities. This is because of the shortage of resources, especially inadequate budget or funding regarding IT and IT infrastructure (refer to section 2.3.2). This statement is agreed by MAMPU (2003), which stated that there are various weaknesses including:

- Uncoordinated, ill-informed and incompetent decisions and purchase of technology
- Lack of knowledge to use and operate technology
- Lack of training, especially in the use of technology
- Employees attitude

The implication from this result is that, inadequate resources will slow the success of KM implementation. This is in line with the thoughts of Holsapple and Joshi (2000), who stated that adequate resources are essential for the success of KM implementation. Thus it is crucial

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for LAM to know how to generate, disseminate and apply the knowledge within their organisation. KS technology (tools) can directly influence the knowledge sharing processes. This statement is agreed by Gunasekaran *et al.* (2001), who mentioned that the uses of these technologies are to satisfy the organisation's information needs.

As a result, it is recommended that LAM have to focus on allocating sufficient resources for investment in technologies. Moreover LAM must focus their intention on intervening processes, such as knowledge sharing in order to determine what benefits are being derived from KS technologies (tools).

In knowledge sharing techniques:

Table 4.6: List of knowledge sharing Techniques used in local authorities

	City (N=3)	Municipal (N=9)	District (N=8)
KS Techniques			
Brainstorming	3	9	0
CoP	3	7	0
Job Rotation	3	7	0
Coaching and mentoring	3	7	0
Non-electronic document ISO Documentation Desk File workflow Local Authority Guideline	3	9	8
Face to face discussion	3	9	8
Formal meeting (Department/OSC/Local authority)	3	9	8
Project review/ Lesson learn	3	7	6

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Table 4.7: The extent of use of the main KS techniques in the planning permission process.

KS techniques	Use	City (N=3)	Municipal (N=9)	District (N=8)
Brainstorming	Used for high impact projects, i.e., foreign investor and government projects	3	9	0
Job rotation	Staff will be exchanged or rotated at all the units in the department, intended to expose them to relevant knowledge	3	7	0
Coaching and mentoring	To guide new members and to inform of any changes of regulation from MHLG and organisation	3	6	0
Official meeting	To get feedback and review from other departments within organisation and other agencies	3	9	8
CoP	Any dispute concerning the application	3	7	0
Non-electronic document	As reference or to check procedure of planning permission process	3	9	8
Project review	Dispute over application, i.e., layout, design	3	7	6

Tables 4.6 and 4.7 show that comparison between used of KS techniques in city, municipal and district authorities. These tables show that most of the KS techniques used depend sub-processes within of the planning permission process.

This was supported by the interviewees from the city, municipal and district authorities.

The interviewee of HDOC 1 said that, “*brainstorming session ...normally used when it involves the application for high impact projects.....government projects and foreign investors....*”

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The interviewee of HDPM 3 said that, “.....*OSC meeting are the platform for us to discuss, evaluate and grant the application.....*”

Taking all the above into consideration, and even though there were some slight differences of usage; overall, it can be recognised that the nature and extent of the use of knowledge sharing techniques depends on:

1. The type of work done in the planning permission process.
2. The viability of resources (manpower, financial, time and technology infrastructure)

The inference that can be drawn from this result (Tables 4.6 and 4.7) is that, most of the knowledge sharing techniques are not successfully done in district authorities because of inadequate resources (human, time and financial) compared to city and municipal authorities (Refer to section 2.3.2, table 2.3 and table 2.4). The implication from this result is that the lack of manpower will impact the value of knowledge. This is because information has little value and will not become knowledge until it is processed by the human mind (Ash, 1998). This fact is in line with the viewpoint of Kirchner (1997) in that knowledge involves the processing, creation, or use of information in the mind of the individual. It is recommended that LAM has to enhance with knowledge sharing and should focus on transposing tacit knowledge into explicit knowledge and see to it that individual knowledge becomes organisational knowledge. This can be explained not only by a need for organisations to better manage knowledge by establishing core competencies for individuals, judging success and performance indicators via recognition of invisible assets, but also for organisations to strive to become an innovative organisation and a learning organisation with a knowledge sharing culture.

4.7 Benefits of Using Knowledge Sharing Tools (Technologies) and Techniques

A variety of tools and techniques can be used to create or stimulate the process of knowledge sharing in organisations. These provide mechanisms for building sustainable knowledge. These mechanisms will contribute to the long-term organisational effectiveness of organisations that wish to institutionalise knowledge management systems. There is a need to structure or classify the knowledge of an organisation. Hansen *et al.* (1999) identified two distinct strategies for developing knowledge management systems: codification and

personalisation. They indicated that most organisations approach the tasks associated with knowledge management by using two distinct strategies. A codification strategy focuses more on technology and a personalisation strategy is centred on managing people. Similarly, Bhatt (2001) emphasised that a balance between technological and social facets needs to occur within an organisation if management is serious about making knowledge management a priority.

Table 4.8: Benefits in using knowledge sharing tools and techniques in the context of LAM

Benefits of using knowledge sharing tools and techniques	Employees Level	Organisational Level
Technologies	<ul style="list-style-type: none"> • Capability to capture knowledge (usability of the information received for innovation) and improves job performance. • Enhance the ability to identify and target valuable knowledge. • Establishment of knowledge repository system (office databases) contributes to the effectiveness of knowledge retrieval and distribution. It also helps to externalise knowledge sharing initiatives and improves planning and decision-making. 	<ul style="list-style-type: none"> • Improve LAM's effectiveness, sharing of knowledge to planners and decision makers (Yaakup <i>et al.</i>, 2007). • Facilitate and accelerate the process of development and control in local authorities (Yaakup <i>et al.</i>, 2007). • Provide the flexibility used to locate and access knowledge in cost-effective manner (return on investment: through capitalising and exploitation of usage) (Egbu <i>et al.</i>, 2003)
Techniques	<ul style="list-style-type: none"> • Develop new skills and construct knowledge by observing and learning from experienced peers (Wenger, 2001; Lewis and Allan, 2005). • Provide an opportunity for employees' direct bearing on knowledge sharing. • Improve interpersonal relationships and diagnosis of collective problems. 	<ul style="list-style-type: none"> • Develop an intrinsic element for success and as a platform for organisational change and valuable assets.

4.7.1 Analysis of quantitative data, the frequency of use, efficacy and exploitation of the main knowledge sharing tools (technologies) and techniques in local authorities in the context of the planning permission process

For the purpose of this research, the researcher has highlighted a few definitions extracted from the Oxford online dictionary.

- Frequency of use – the rate at which something occurs over a particular period of time or repeated use of KS technologies (tools) and techniques.

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- Extent of use – the particular degree to which something is used; the KS technologies (tools) and techniques.
- Efficacy – the ability to produce a desired or intended result or effectiveness
- Exploitation – the action of making use of and benefiting from resources

Therefore, for this research the meaning of frequency of use of knowledge sharing technologies (tools) and techniques is defined as the number of times that KS technologies and tools are used over a particular period during the planning permission process. Extent of use refers to how and when they were first used and when they are used, and efficacy refers to the ability or effectiveness. Finally, exploitation refers to the utilisation, the benefits received and action of knowledge sharing technologies (tools) and techniques in local authorities.

From the questionnaire of KS technologies (tools) and techniques the respondents were asked to rank their frequency of use, and then to rank how effective these technologies (tools) and techniques are in knowledge sharing. Finally, they were also asked the extent to which their organisation freely exploits, them in order to gain benefit from KS technologies (tools) and techniques in the context of the planning permission process. The mean values for the frequency, effective and exploitation of use were calculated accordingly.

4.7.2 Analysis of data for the frequency of use of the main KS technologies (tools) and techniques local authorities use in the planning permission process

From the questionnaire of KS technologies (tools) and techniques the respondents were asked to rank their frequency of use.

Table 4.9: The frequency of use of the main KS technologies (tools) and techniques in local authorities – refer to planning authority and guideline of planning requirements.

a) Refer to planning authority and guideline of planning requirement								
Technologies (Tools)	City	Rank	Municipal	Rank	District	Rank	Overall	Rank
and Techniques	Mean Value		Mean Value		Mean Value		Mean Value	
Technologies								
Telephone	1.6786	1	1.6275	1	1.4167	1	1.5922	1
Knowledge base expert system	1.8929	2	2.3333	2	3.1250	6	2.3981	2
Electronic office databases	2.2500	4	2.3725	3	2.7917	2	2.4369	3
Internet	2.2857	5	2.4118	4	2.8750	4	2.4854	4
Intranet	2.0000	3	2.6078	5	2.8333	3	2.4951	5
Groupware	2.9286	6	2.7843	6	2.7083	5	2.8058	6
Techniques								
Non-electronic work manual document	1.7857	4	1.7647	1	1.9167	1	1.8058	1
Project Review	1.5000	1	1.8039	2	2.8333	5	1.9612	2
Communities of Practice	1.7143	2	2.0392	4	2.5417	2	2.0680	3
Mentoring and coaching	2.2500	5	1.9804	3	2.6250	3	2.2039	4
Training (inhouse)	1.7500	3	2.3137	5	2.9167	6	2.3010	5
Brainstorming	2.4643	6	2.4510	6	2.7917	4	2.5340	6
Job rotation	3.4643	7	3.1765	7	3.4167	7	3.3107	7
Meaning of scale: 1 (Very Frequent), 2 (Frequent), 3 (Fairly Frequent), 4 (Not Frequent At All).								

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Table 4.10: The frequency of use of the main KS technologies (tools) and techniques in local authorities – planning officer will refer to State Planning Dept. and NPPC.

b) Planning officer will refer to: State planning dept. and NPPC								
Technologies (Tools) and Techniques	City Mean Value	Rank	Municipal Mean Value	Rank	District Mean Value	Rank	Overall Mean Value	Rank
Technologies								
Telephone	1.6071	1	1.5882	1	1.3333	1	1.5340	1
Knowledge base expert system	2.4286	4	2.4706	3	2.4167	2	2.4466	2
Electronic office databases	2.2857	3	2.4118	2	2.8750	6	2.4854	3
Internet	2.0000	2	2.6471	5	2.7500	4	2.4951	4
Intranet	2.5357	5	2.5686	4	2.8333	5	2.6214	5
Groupware	3.0714	6	2.7843	6	2.5833	3	2.8155	6
Techniques								
Project Review	1.8571	2	1.8235	2	1.8750	1	1.8447	1
Non-electronic work manual document	1.5000	1	1.8039	1	2.8333	5	1.9612	2
Communities of Practice	2.1071	4	2.0784	4	1.9583	2	2.0583	3
Mentoring and coaching	2.2500	6	1.9804	3	2.6250	4	2.2039	4
Training (inhouse)	2.1429	5	2.3333	5	2.5833	3	2.3398	5
Brainstorming	1.8571	3	2.3333	6	3.1250	6	2.3883	6
Job rotation	3.4643	7	3.1765	7	3.4167	7	3.3107	7
Meaning of scale: 1 (Very Frequent), 2 (Frequent), 3 (Fairly Frequent), 4 (Not Frequent At All).								

Looking at the aggregate level, for both stages of planning permission, the most frequently use KS technologies (tools) are as follows: telephone, knowledge based-system and electronic office databases. The lowest rank in terms of their mean value is groupware. It seems that this tool is rarely used and it is perceived as being of little or no use to the majority of respondents. However, groupware is important collaborative software for sharing and transferring knowledge within an organisation (Robinson *et al.*, 2001).

The inferences that can be drawn from this result is that the telephone, which is a conventional technology for acquiring, sharing and developing knowledge, is still frequently used among officers when going through the planning permission process. The telephone remains in frequent use for knowledge sharing because it provides access to real time information and communication (Kargin and Basoglu (2007)).

The implication from this result is that the telephone has a great impact on knowledge sharing, its usage takes place in a simple and effective manner and particularly in the fields of information collection, collaboration and communication and task completion. Hence, the telephone is the cheapest, fastest and the most effective KS technology (tool) compared to other KS technologies (tools) used in the planning permission process. According to Allee (1997) sharing knowledge through a communication channel people can socialise their work

with each other. Yang and Wu (2008) revealed that specific knowledge involves the knowledge of the particular circumstances of time and place in which the work is to be performed.

The evidence suggests that although the Malaysia government has invested considerably in the technological aspects, especially by providing citizens with relevant services and information that are quicker and cost effective (Refer to section 1.2), the telephone is still the most popular tool in the planning permission process. Knowledge based system, electronic office databases, the Internet, intranet are KS technologies of capturing, sharing, transferring and storing knowledge. It is recommended that LAM pay attention to the different types of technologies that exist. According to research by Currie (1996), large sized organisations have some advantages that allow for economies of scale and the ability to generate in-house specialism compared to small organisations.

In the context of KS techniques, there are slight differences in terms of ranking for both stages; the most frequently used are non-electronic documents, project review and community of practice. The lowest ranks in terms of their mean value are brainstorming and job rotation. The task outcomes from brainstorming are often multi-dimensional and difficult to quantify, however, the outcome of the session can be shared, such as quality of those ideas. Job rotation involves the movement of employees through a range of jobs and the training of employees.

The inferences that can be drawn from this result are that conventional KS techniques are more preferable compared to the other KS techniques. Documentation remains important because of the current approaches, such as ISO 9002 documentation, guidelines for development control, job manual, and current procedure and policies still have great potential in gathering and sharing knowledge in local authorities. Ikhsan (2005) commented that ISO documents, job manual procedure, filing system and desk filing have proven to be an effective way in generating and sharing knowledge among employees in the Malaysian public sector. The Malaysian Administrative Modernisation and Planning Unit (MAMPU) is the highest authority in setting the standard and policy for developing, modernizing and reforming public administration (Jeong, 2007).

The implication of this result is that explicit knowledge can, in principle be made widely and readily available by documenting in manuals and procedures. This explicit knowledge or procedural knowledge can be acquired by reading, analysing and re-organising information from the source (explicit knowledge). Explicit knowledge can be codified, stored, transferred (Lam, 2000), for easier dissemination and communication (Schulz, 2001). Therefore, it (explicit knowledge) has a natural advantage compared to tacit knowledge in terms of the ability to share easily among individuals.

From the evidence, it is recommended that LAM should document all the tacit knowledge that is particularly related to best practice to make sure the LAM organisation can grab the benefit from the codification. According to O'Hara and Shadbolt (2001) the benefit of codification is that knowledge is more easily shared around the organisation. Second, the knowledge, when made explicit, becomes a permanent fixture in the organisation, third, an explicit repository of knowledge can be the object of commerce and it can be sold to interested customers. Fourth, the externalization of knowledge turns it from a rival to a non-rival good. Explicit knowledge, stored on an intranet or in a manual, can be used simultaneously by many people, and thus is a non-rival good (Roberts, 2000).

Further analysis was made at the disaggregate level, from which it is evident that the most frequently used KS technology (tools) in the following stages of the planning permission process is the telephone. The telephone is a simple and familiar tool for communicating and sharing knowledge. According to Egbu (2000), the telephone remains important for KM because it could be used to capture and distribute structured knowledge and also enable people to share tacit knowledge.

Other KS technologies have slight differences in terms of frequency of use in both stages of the planning permission process. For the stage of 'planning officer will refer to State Dept. and NPPC' the respondents from the city authorities ranked highly the Internet and electronic office databases, which contradicts with the views of their counterparts in the municipal and district councils who ranked electronic office databases and knowledge based systems highly.

An inference that can be drawn from this result (Table 4.9 and 4.10) is that the frequency of use of KS technologies is the highest compared to others. This is because this stage (refer to planning authority and the guideline for planning requirements) is the critical stage in which the planning officer needs more information, and, hence, why the knowledge based system is

used more at this stage. However, for 'planning officer will refer to State Dept. and NPPC' where all disputes for planning permission process will be directly referred to the State Planning Department and National Physical Planning Council (Refer section 2.3.5 and Table 2.6).

The Implication from this result (Table 4.9 and 4.10) is that the knowledge sharing technologies (tools) can directly influence the knowledge sharing processes. This is in agreement with López *et al.* (2009) who mentioned that the IT revolution has facilitated the processes of searching for and recovering information and at the same time has led to an important growth in the database industry. This is also agreed by Tippins and Sohi (2003), from their study where information technology competency is how the organisation uses these technologies to manage its information effectively.

The disaggregate levels for KS techniques were slightly different in terms of ranking for both stages of the planning permission process. According to both sub-processes of planning permission process (Table 4.9 and 4.10) looking at the total cumulative numbers for the type of local authority, the three highest ranked KS techniques are –project review, non-electronic work manual document, and communities of practice.

From this it can be inferred that the codification documents are very important in the LAM organisation. The implications from these results are that knowledge must be captured, codified, presented and stored in a structured way. This is in agreement with Cross and Baird (2000) who stated that knowledge codification and storage are very important for effective management of knowledge.

It is recommended that all LAM have to provide enough facilities or infrastructure to make sure that knowledge codification can be implemented effectively. Such actions are supported by some scholars who have acknowledged that knowledge management is only valuable for organisations if it is embedded in and aligned with the organisation's strategy and not seen as an isolated or self-sufficient function (Güldenbergh, 2003). The value of knowledge management is the relation of the design of IT strategies (Carr, 2003; Moffet *et al.*, 2003) and also focuses on human resource management issues (e.g. training programmes, incentives, etc.) (Osterloh *et al.*, 2002).

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Taking the above into consideration, and even though there were some slight deviations, the following can be recognised as being frequently used:

KS technologies (tools)

- Telephone
- Knowledge based expert system (planning approval system and geographical information system)
- Electronic office databases
- Internet

KS techniques

- Non-electronic work manual document
- Project reviews
- Communities of practice
- Mentoring and coaching

This prompted the need to investigate whether the frequencies of use are associated with the type of local authority. The test of the null hypothesis was used to investigate this.

Null hypothesis H_0 - The frequency of use of the main knowledge sharing tools and techniques do not differ according to the type of local authority.

This was further examined using the Kruskal-Wallis test. The results of the Kruskal-Wallis test are given in Tables 4.11 and 4.12.

Table 4.11: Kruskal-Wallis Test Statistics for frequency of use of the main KS technologies (tools) and techniques in the planning permission process – refer to planning authority and the guideline for planning requirements

a) Refer to planning authority and guideline of planning requirement													
Test Statistics ^{a,b}													
	Telephone	System	Internet	Intranet	Electronic	Group	Training	Manual	COP	Brainstorming	Mentoring	Job	Project
Chi-Square	4.154	43.758	6.865	19.130	6.449	1.246	22.597	.469	16.560	3.760	14.452	4.188	26.902
df	2	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.125	.000	.032	.000	.040	.536	.000	.791	.000	.153	.001	.123	.000
* result (Bold) are statistically significant at $p < 0.05$													

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Table 4.12: Kruskal-Wallis Test Statistics for frequency of use of the main KS technologies (tools) and techniques in the planning permission process – planning officer will refer to State Planning Dept. and NPPC

b) Planning officer will refer to: State planning dept. and NPPC													
Test Statistics ^{a,b}													
	Telephone	System	Internet	Intranet	Electronic	Group	Training	Manual	COP	Brainstorming	Mentoring	Job	Project
Chi-Square	5.634	.277	15.904	2.161	6.637	5.146	3.383	26.902	.154	46.548	14.452	4.188	.383
df	2	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.060	.870	.000	.340	.036	.076	.184	.000	.926	.000	.001	.123	.826
* result (Bold) are statistically significant at $p < 0.05$													

As per section 3.9.1.4, the Kruskal-Wallis statistic measures how much the group rank differs from the average rank of all the groups. Thus, at the 5% level of significance, the results suggest that the frequency of use of the main KS technologies (tools) and techniques differ according to the type of local authority. Therefore, the null hypothesis of this research is rejected. Meaning that the frequency of use of the main knowledge sharing tools and techniques differ according to the type of local authority.

4.7.3 Analysis of data of the effectiveness of use of the main KS technologies (tools) and techniques by local authorities in the planning permission process

Table 4.13: The effectiveness of use of the main KS technologies (tools) and techniques in local authorities – refer to planning authority and guideline of planning requirements.

a) Refer to planning authority and guideline of planning requirement								
Technologies (Tools)	City Council	Rank	Municipal	Rank	District	Rank	Overall	Rank
and Techniques	Mean Value		Mean Value		Mean Value		Mean Value	
Technologies								
Telephone	1.9643	1	1.9608	1	1.7500	1	1.9126	1
Internet	2.2143	2	2.4902	5	2.7917	3	2.4078	2
Knowledge base expert system	2.3214	3	2.2941	3	2.8333	4	2.4272	3
Electronic office databases	2.4286	4	2.2745	2	2.7917	2	2.4369	4
Intranet	2.5357	5	2.4510	4	2.8750	5	2.5728	5
Groupware	3.3571	6	2.6078	6	3.2083	6	2.9515	6
Techniques								
Project Review	1.8214	1	2.0000	1	2.1667	1	1.9903	1
Training (inhouse)	1.8214	2	2.0784	5	3.0000	7	2.2233	2
Mentoring and coaching	2.1429	4	2.2549	6	2.3333	2	2.2427	3
Non-electronic work manual	2.2500	6	2.0196	2	2.4583	3	2.2621	4
Brainstorming	2.1071	3	2.0588	4	2.8750	5	2.2621	5
Communities of Practice	2.2143	5	2.0392	3	3.0000	6	2.3107	6
Job rotation	2.9286	7	2.9412	7	2.6667	4	2.8738	7
Meaning of scale: 1 (Very Effective), 2 (Effective), 3 (Fairly Effective), 4 (Not Effective At All).								

Table 4.14: The effectiveness of use of the main KS technologies (tools) and techniques in local authorities – planning officer will refer to State Planning Dept. and NPPC.

b) Planning officer will refer to: State planning dept. and NPPC								
Technologies (Tools)	City	Rank	Municipal	Rank	District	Rank	Overall	Rank
and Techniques	Mean Value		Mean Value		Mean Value		Mean Value	
Technologies								
Telephone	1.7857	1	1.9020	1	1.4167	1	1.7573	1
Internet	2.1429	2	2.4510	5	2.2917	2	2.3301	2
Electronic office databases	2.3214	3	2.2941	4	2.5417	3	2.3592	3
Knowledge base expert system	2.4286	4	2.2745	2	2.6667	4	2.4078	4
Intranet	2.4286	5	2.2745	3	3.0833	6	2.5049	5
Groupware	3.3571	6	2.5882	6	3.0417	5	2.9029	6
Techniques								
Project Review	1.6429	1	1.6471	1	2.4167	3	1.8252	1
Mentoring and coaching	1.6429	2	2.0588	5	2.5417	4	2.0583	2
Communities of Practice	1.9286	4	2.0392	4	2.3750	2	2.0874	3
Brainstorming	2.1429	5	1.9020	2	2.5833	5	2.1650	4
Training (inhouse)	1.9286	3	2.2353	6	2.3750	1	2.1845	5
Non-electronic work manual	2.2857	6	1.9412	3	2.7917	7	2.1942	6
Job rotation	2.9643	7	2.8039	7	2.6250	6	2.8058	7
Meaning of scale: 1 (Very Effective), 2 (Effective), 3 (Fairly Effective), 4 (Not Effective At All).								

From the discussion at the aggregate level, it is evident that the most effective KS technologies (tools) are: telephone, Internet, electronic office databases and knowledge base expert system. It can be inferred from the above Tables (Tables 4.13 and 4.14) is that the telephone, Internet, electronic office databases and knowledge based expert system are very effective use of KS technologies (tools) in the LAM. This is because, as mentioned earlier, the city authorities and some of the municipal and district authorities have the ability to motivate employees by addressing their knowledge and learning needs for their employees. Although technology alone may not be effective in encouraging knowledge sharing activities (Brazelton and Gorry, 2003), support from the management and the relationship between the communicating parties as a formula to shape technology, enables knowledge activities to become reality (Kim and Jarvenpa, 2008). The implication from this result is that conventional technologies for acquiring, developing, sharing and storing knowledge like the telephone, electronic office databases and knowledge based expert system are still used effectively in the LAM. This is because, for example, the telephone is the simplest and most familiar tool for communicating and sharing knowledge. It is agreed by Egbu (2000) that the telephone remains important for KM because it could be used to capture and distribute structured knowledge as well as enable people to share tacit knowledge. It is recommended

that the KS technologies (tools) that are perceived to be the least effective are those that have the potential to substantially benefit the local authorities in Malaysia. Collaboration is a fundamental aspect of the planning permission process and, therefore, it is recommended that LAM have to consider the different types of collaborative technologies that exist.

From the discussion at the aggregate level, it is evident that the most effective KS techniques are project review, training, mentoring and coaching, and communities of practices. The inference that can be drawn from Table 4.13 and 4.14 is that Malaysian policies have implemented the documentation of best practices and these can be referred to LAM to ensure the success of evaluating the planning permission process. Additionally, this research has shown that the relationship between the employees' job satisfaction and the amount of courtesy displayed was stronger in the more cohesive groups. In human resource management studies of social interaction suggest that human resource activities affect the development of employees trust and improve effectiveness at work. According to Plessis (2007), an effective KM process requires creating a supportive culture and eliminating traditional rivalries. The implication from this result is that both the process of externalisation (making tacit knowledge explicit) and socialisations are very important in LAM. The emphasis of explicit knowledge codification allows knowledge to be shared, and therefore allows the organisation to gain maximum benefit there from. Moreover, holding knowledge in tacit form can also be useful for the organisation (Nonaka and Takeuchi, 1995). It is recommended that the LAM have to balance the implementation of KS technologies (tools) and techniques in their organisation to ensure the knowledge does not escape and also reduce the organisation's expenses.

For disaggregate level (technologies) it is evident that for all types of authority, the first ranked is the telephone. Followed by the Internet/electronic office databases and the third ranked is knowledge based experts system/electronic office databases. The inferences that can be derived from the above Tables (Tables 4.13 and 4.14) are that the telephone is a conventional technology that is used very effectively in all LAM. In addition, other technologies, such as the Internet, knowledge based experts system and electronic office databases, are also effectively used in LAM. However, based on the evidence, the frequency of use of these technologies is small. This is because some of the municipal and district authorities are not supplied with sufficient IT facilities and lack appropriate infrastructure

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(Refer to the interviewee's comments in section 4.6). The implication from this result is that, although the conventional technologies are very popular in the LAM, the increase of use in IT has improved. According to King (2005), several researchers have associated knowledge management with the development of information technologies. In addition, the new technologies are characterised by their capacity to influence the traditional ways (Duffy, 2001). It is recommended that LAM should not only allocate sufficient resources for IT investment, but should also intervene in the process of knowledge sharing in order to determine what benefits are being derived from IT-based information systems. LAM also need to develop a clear policy for knowledge generation, identify what knowledge is important its organisations and under what circumstances it should be disseminated; foster the transfer and integration of knowledge between workers, exploit the interrelations between workgroups; and implement a knowledge map that determines in which people and systems the organisation's accumulated knowledgebase should reside.

For KS techniques at the disaggregate level, the most effective KS technique for each type of local authority is project review. This is followed by mentoring, brainstorming and CoP. The third ranked is training and non-electronic work manual. The inference that can be drawn from the above tables (Tables 4.13 and 4.14) is that the effectiveness of use of explicit and tacit knowledge is balanced in the LAM. The implication from this result is that the knowledge workers in LAM are concerned with the quality of their output and they know how to find the specific knowledge related to the planning permission process. It is recommended that LAM have to monitor, control and evaluate to ensure that KS techniques work as planned, bring effective result and satisfy the needs of all employees.

Taking the above into consideration, and even though there were some slight deviations; the following can be recognised as having an impact on the effectiveness of the use of the main KS technologies:

KS technologies (tools)

- Telephone
- Internet
- Electronic office databases
- Knowledge based expert system (planning approval system and geographical information system)

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KS techniques

- Project reviews
- Training
- Mentoring and coaching
- Communities of practice

Therefore, further investigation is needed to determine whether the effectiveness of the use is associated with the type of local authority. The test of the null hypothesis was used to investigate this.

Null hypothesis H_0 - The effectiveness of use of the main knowledge sharing tools and techniques do not differ according to the type of local authority.

The results of the Kruskal-Wallis test are given in tables 4.15 and 4.16.

Table 4.15: Kruskal-Wallis Test Statistics for frequency of use of the main KS technologies (tools) and techniques in planning the permission process – refer to planning authority and guideline of planning requirements

a) Refer to planning authority and guideline of planning requirement													
Test Statistics ^{a,b}													
	Telephon_6a	System_6a	Internet_6a	Intranet_6a	Electronic_6a	Group_6a	Training_6a	Manual_6a	COP_6a	Brainstorming_6a	Mentoring_6a	Job_6a	Project_6a
Chi-Square	1.858	10.193	3.753	4.564	7.816	14.588	26.416	16.959	18.456	22.407	1.164	1.523	2.785
df	2	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.395	.006	.153	.102	.020	.001	.000	.000	.000	.000	.559	.467	.249
* result (Bold) are statistically significant at $p < 0.05$													

Table 4.16: Kruskal-Wallis Test Statistics for effectiveness of use of the main KS technologies (tools) and techniques in the planning permission process – planning officer will refer to State Planning Department and NPPC

b) Planning officer will refer to: State planning dept. and NPPC													
Test Statistics ^{a,b}													
	Telephon_6b	System_6b	Internet_6b	Intranet_6b	Electronic_6b	Group_6b	Training_6b	Manual_6b	COP_6b	Brainstorming_6b	Mentoring_6b	Job_6b	Project_6b
Chi-Square	8.186	4.200	3.368	19.248	2.990	13.265	5.084	16.327	5.676	15.022	16.414	2.517	14.968
df	2	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.017	.122	.186	.000	.224	.001	.079	.000	.059	.001	.000	.284	.001
* result (Bold) are statistically significant at $p < 0.05$													

As per section 3.9.1.4, the Kruskal-Wallis statistic measures how much the group rank differs from the average rank of all the groups. Thus, at the 5% level of significance, the results suggest that the effectiveness of use of the main KS technologies (tools) and techniques differs according to the type of local authority. Therefore, the null hypothesis of this research

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is rejected. Meaning that the effectiveness of use of the main knowledge sharing tools and techniques differ according to the type of local authority.

4.7.4 Analysis of data for the exploitation of use of the main KS technologies (tools) and techniques by local authorities in the planning permission process

Table 4.17: The exploitation of use of the main KS technologies (tools) and techniques in local authorities – refer to planning authority and guideline of planning requirements.

a) Refer to planning authority and guideline of planning requirement								
Technologies (Tools) and Techniques	City Mean Value	Rank	Municipal Mean Value	Rank	District Mean Value	Rank	Overall Mean Value	Rank
Technologies								
Knowledge base expert system	1.7857	3	1.9216	2	1.5417	1	1.7961	1
Electronic office databases	1.5714	1	1.7843	1	2.4167	3	1.8738	2
Internet	1.6071	2	2.0588	3	1.8333	2	1.8835	3
Intranet	1.9643	5	2.2353	5	2.4167	4	2.2039	4
Groupware	1.8571	4	2.2157	4	2.6250	5	2.2136	5
Telephone	3.3214	6	3.2353	6	3.3750	6	3.2913	6
Techniques								
Communities of Practice	2.3214	3	1.9804	1	2.6250	3	2.2233	1
Brainstorming	2.1786	1	2.2941	2	2.7917	5	2.3786	2
Mentoring and coaching	2.3214	4	2.5490	6	2.2500	1	2.4175	3
Job rotation	2.5357	6	2.4118	4	2.5417	2	2.4757	4
Non-electronic work manual	2.3571	5	2.3529	3	2.9167	7	2.4854	5
Training (inhouse)	2.2857	2	2.4314	5	2.8750	6	2.4951	6
Project Review	2.9286	7	2.9412	7	2.6667	4	2.8738	7
Meaning of scale: 1 (A Very High Level of Exploitation), 2 (High Level of Exploitation), 3 (Low Level of Exploitation), 4 (No Exploitation At All)								

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Table 4.18: The exploitation of use of the main KS technologies (tools) and techniques in local authorities – planning officer will refer to State Planning Dept. and NPPC.

b) Planning officer will refer to: - state planning department and NPPC								
Technologies (Tools) and Techniques	City Mean Value	Rank	Municipal Mean Value	Rank	District Mean Value	Rank	Overall Mean Value	Rank
Technologies								
Knowledge base expert system	1.8571	3	2.0000	3	1.7083	1	1.8932	1
Internet	1.5714	1	1.7843	1	2.5833	4	1.9126	2
Electronic office databases	1.6071	2	2.0588	4	2.0000	2	1.9223	3
Groupware	1.9286	4	2.2353	5	2.4167	3	2.1942	4
Intranet	2.2500	5	1.9804	2	2.6250	5	2.2039	5
Telephone	2.9286	6	2.9412	6	2.6667	6	2.8738	6
Techniques								
Communities of Practice	1.8929	1	2.2157	1	2.6250	3	2.2233	1
Training (inhouse)	2.1786	2	2.2353	2	2.7917	4	2.3495	2
Brainstorming	2.3214	5	2.5490	6	2.2500	1	2.4175	3
Mentoring and coaching	2.3214	4	2.3529	3	2.9167	6	2.4757	4
Job rotation	2.5357	6	2.4118	5	2.5417	2	2.4757	5
Non-electronic work manual	2.2857	3	2.4118	4	2.8750	5	2.4854	6
Project Review	3.3214	7	3.2353	7	3.3750	7	3.2913	7
Meaning of scale: 1 (A Very High Level of Exploitation), 2 (High Level of Exploitation), 3 (Low Level of Exploitation), 4 (No Exploitation At All)								

From the result at the aggregate level, it is evident that in terms of the exploitation of use of KS technologies (tools) for both stages of planning permission process: ‘refer to planning authority and guideline for planning requirements’ and ‘Planning officer will refer to state planning department and NPPC’ the most highly ranked were knowledge based expert system, electronic office databases and the Internet. The inference that can be revealed from the above tables (Tables 4.17 and 4.18) is that during the exploitation of use, LAM have increasingly used more IT tools. According to Alavi and Leidner (2001) the IT based systems have been developed to support and enhance the organisational process of knowledge creation, storage/retrieval, transfer, and application. In addition, Blake (1998) stated that capturing a company’s collective expertise in a database can help the organisation to know what they actually know and then organise and exploit this knowledge in a systematic way. The implication from this result is that LAM have to combine the exploitation of IT and people in their knowledge sharing initiatives to make sure that the work is done faster and efficiently. It is recommended that LAM have to integrate the use of IT in knowledge sharing initiatives with culture and trust. This is highlighted by Issa and Haddad (2008), who stated that the factors that contribute to knowledge sharing are culture, trust and IT. People are ready to share knowledge when they trust other people.

From Table 4.17 and 4.18, at the aggregate level, it is evident that the most highly ranked factors affecting the exploitation of use of KS techniques for both stages of the planning permission process: 'refer to planning authority and guideline for planning requirements' and 'Planning officer will refer to state planning department and NPPC' are CoP, brainstorming, mentoring/coaching and training. The inferences that can be drawn from the above tables are that during the exploitation of use, LAM have exploited tacit knowledge within their organisations. Tacit knowledge is complex and very difficult to express and is often context specific, which can provide a source of potential sustainability (Endress *et al.* 2007). The implication from these results (Table 4.17 and 4.18) is that the context of the organisation is a key component of tacit knowledge sharing behaviour. This is in agreement with Garud and Nayyar (1994) who stated that the context of the organisation or group is central in affecting the formation of self-efficacy to share tacit knowledge. It is recommended that LAM have to provide programmes that encourage the development of a supportive culture and trust for LAM to ensure that knowledge sharing is implemented in a positive way.

For KS technologies (tools) at the disaggregate level, there are no difference with the aggregate level. It is evident that the most highly ranked factors affecting the exploitation of the use of KS techniques for both stages of the planning permission process: 'refer to planning authority and guideline for planning requirements' and 'Planning officer refer to state planning department and NPPC' are knowledge based expert system, electronic office databases and the Internet. The inference that can be revealed from the above tables (Tables 4.17 and 4.18) is that, city, municipal and district authorities have exploited IT tools. The implications from this result is that the employees within LAM have to be trained to exploit more types of IT tool within the market to make sure they are relevant to the current need of globalisation. Ultimately, it is understood that the IT used by LAM depends on the context of the work that is done. It is revealed by Egbu and Botterill (2002) that the type of IT used by an organisation depends on the context of the work done. It is recommended that more training programmes should be allocated by LAM, especially training in IT programmes to train employees to be able to exploit more types of IT and thus to be sustainable globally.

For KS techniques at the disaggregate level, there are also no difference with the aggregate level. It is evident that the most highly ranked factors affecting the exploitation of the use of

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KS techniques for both stages of the planning permission process: 'refer to planning authority and guideline for planning requirements' and 'Planning officer refer to state planning department and NPPC' are CoP, brainstorming and training. The inference that can be exposed from the above tables (Tables 4.17 and 4.18) is that through the exploitation of use of KS technologies and techniques, the authorities have exploited their tacit knowledge within their organisation. The implications from this result is that, the authorities have exploited their resources and properly deployed them in the right place at the right time in order to meet the required standard. The researcher believes that this is because, with the number of staff who are knowledgeable workers and highly competent (refer section 2.3.3), it is easy to implement KS techniques, such as in-house training, brainstorming sessions and for developing group interest or communities of practice. Even though there is a clear designated channel of communication in the organisation, individuals tend to rely more on an informal relationship for communication (Stevenson and Gilly, 1991). It recommended that LAM have to set up more informal channels like coffee corners, for their employees to share their knowledge.

Taking the above into consideration, and even though there were some slight deviations, it can be recognised that the exploitation of use includes:

KS technologies (tools)

- Knowledge based expert system (planning approval system and geographical information system)
- Electronic office databases and
- Internet
- Intranet

KS techniques

- Communities of practices
- Training
- Brainstorming
- Mentoring and coaching

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Therefore, it needs further investigation as to whether the exploitation of knowledge sharing tools and techniques is associated with the type of local authority. The test of the null hypothesis was used to investigate this.

Null hypothesis H_0 – The exploitation of knowledge sharing tools and techniques do not differ according to the type of local authority.

The results of the Kruskal-Wallis test are given in tables 4.18 and 4.19.

Table 4.19: Kruskal-Wallis Test Statistics for the exploitation of KS technologies (tools) and techniques in the planning permission process – refer to planning authority and the guideline for planning requirements

a) Refer to planning authority and guideline of planning requirement													
Test Statistics ^{ab}													
	Telephon_4a	System_4a	Internet_4a	Intranet_4a	Electronic_4a	Group_4a	Training_4a	Manual_4a	COP_4a	Brainstorming_4a	Mentoring_4a	Job_4a	Project_4a
Chi-Square	.812	4.209	3.774	5.089	17.471	10.764	6.601	17.194	14.352	7.453	4.062	.810	1.523
df	2	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.666	.122	.152	.078	.000	.005	.037	.000	.001	.024	.131	.667	.467
* result (Bold) are statistically significant at $p < 0.05$													

Table 4.20: Kruskal-Wallis Test Statistics for the exploitation of KS technologies (tools) and techniques in the planning permission process – planning officer will refer to State Planning Department and NPPC

b) Planning officer will refer to: State planning dept. and NPPC													
Test Statistics ^{ab}													
	Telephon_4b	System_4b	Internet_4b	Intranet_4b	Electronic_4b	Group_4b	Training_4b	Manual_4b	COP_4b	Brainstorming_4b	Mentoring_4b	Job_4b	Project_4b
Chi-Square	1.523	2.502	26.215	14.452	3.641	5.569	8.651	6.865	10.159	4.062	18.114	.810	.812
df	2	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.467	.286	.000	.001	.162	.062	.013	.032	.006	.131	.000	.667	.666
* result (Bold) are statistically significant at $p < 0.05$													

As per section 3.9.1.4, the Kruskal-Wallis statistic measures how much the group rank differs from the average rank of all the groups. Thus, at the 5% level of significance, the results suggest that the exploitation of KS technologies (tools) and techniques differ according to the type of local authority. Therefore, the null hypothesis of this research is rejected.

4.7.5 Correlation between frequency and effectiveness of use of KS technologies (tools) and KS techniques in the planning permission process.

Further examination was conducted to identify the correlation between the frequency and effectiveness of use for KS technologies (tools) and KS techniques. For a closer look to identify whether the correlation between the frequency and effectiveness of use for KS technologies (tools) and KS techniques have an impact on the results discussed (Table 4.21, Table 4.22, Table 4.23, Table 4.24 – KS technologies; Table 4.25, Table 4.26, Table 4.27, Table 4.28 – KS techniques). The test of the null hypothesis was used to investigate.

Null hypothesis H0- There is no correlation between the frequency and effectiveness of use of knowledge sharing tools and techniques approach in the planning permission process.

The tables below show the correlation between the frequency and the effectiveness of use:

- KS Technologies (tools)

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Table 4.21: Cross tabulation (knowledge base system) between frequency and effectiveness of use of KS technologies (tools) in the planning permission process – refer to planning authority and the guideline for planning requirements

Knowledge base system_5a * Knowledge base system_6a Crosstabulation							
			System_6a				Total
			1.very effective	2.effective	3.fairly effective	at all	
System_5a	1.very frequent	Count	1	2	3	1	7
		% within System_5a	14.3%	28.6%	42.9%	14.3%	100.0%
		% within System_6a	12.5%	3.9%	8.3%	12.5%	6.8%
		% of Total	1.0%	1.9%	2.9%	1.0%	6.8%
		Std. Residual	.6	-.8	.4	.6	
	2.frequent	Count	2	39	12	2	55
		% within System_5a	3.6%	70.9%	21.8%	3.6%	100.0%
		% within System_6a	25.0%	76.5%	33.3%	25.0%	53.4%
		% of Total	1.9%	37.9%	11.7%	1.9%	53.4%
		Std. Residual	-1.1	2.3	-1.6	-1.1	
	3.fairly frequent	Count	4	7	18	5	34
		% within System_5a	11.8%	20.6%	52.9%	14.7%	100.0%
		% within System_6a	50.0%	13.7%	50.0%	62.5%	33.0%
		% of Total	3.9%	6.8%	17.5%	4.9%	33.0%
		Std. Residual	.8	-2.4	1.8	1.5	
	4.not frequent at all	Count	1	3	3	0	7
		% within System_5a	14.3%	42.9%	42.9%	.0%	100.0%
		% within System_6a	12.5%	5.9%	8.3%	.0%	6.8%
		% of Total	1.0%	2.9%	2.9%	.0%	6.8%
		Std. Residual	.6	-.3	.4	-.7	
Total	Count		8	51	36	8	103
	% within System_5a		7.8%	49.5%	35.0%	7.8%	100.0%
	% within System_6a		100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total		7.8%	49.5%	35.0%	7.8%	100.0%

Chi-Square Tests			
	Value	df	(2-sided)
Pearson Chi-	24.542 ^a	9	.004
Likelihood Ratio	26.037	9	.002
Linear-by-Linear	1.424	1	.233
N of Valid Cases	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by	Phi	.488	.004
Nominal	Cramer's V	.282	.004
N of Valid Cases		103	

There is an association between knowledge based systems (frequency of use) and knowledge based systems (effectiveness of the use) in the stage of 'refer to planning authority and the guideline for planning requirements' part of the planning permission process. This significant finding reflects the fact that the knowledge based system is used very frequently, and is very effective at about 42.9% (14.3% + 28.6%).

KS tools and techniques in planning permission process

Table 4.22: Cross tabulation (Electronic office data bases) between frequency and effectiveness of use of KS technologies (tools) in the planning permission process – refer to planning authority and the guideline for planning requirements

Electronic office databases_5a * Electronic office databases_6a Crosstabulation							
			Electronic_6a				Total
			1.very effective	2.effective	3.fairly effective	4.not effective at all	
Electronic_5a	1.very frequent	Count	3	1	0	0	4
		% within Electronic_5a	75.0%	25.0%	.0%	.0%	100.0%
		% within Electronic_6a	30.0%	2.4%	.0%	.0%	3.9%
		% of Total	2.9%	1.0%	.0%	.0%	3.9%
		Std. Residual	4.2	-.5	-1.4	-.4	
	2.frequent	Count	4	27	28	1	60
		% within Electronic_5a	6.7%	45.0%	46.7%	1.7%	100.0%
		% within Electronic_6a	40.0%	64.3%	59.6%	25.0%	58.3%
		% of Total	3.9%	26.2%	27.2%	1.0%	58.3%
		Std. Residual	-.8	.5	.1	-.9	
	3.fairly frequent	Count	2	12	15	0	29
		% within Electronic_5a	6.9%	41.4%	51.7%	.0%	100.0%
		% within Electronic_6a	20.0%	28.6%	31.9%	.0%	28.2%
		% of Total	1.9%	11.7%	14.6%	.0%	28.2%
		Std. Residual	-.5	.1	.5	-1.1	
	4.not frequent at all	Count	1	2	4	3	10
		% within Electronic_5a	10.0%	20.0%	40.0%	30.0%	100.0%
		% within Electronic_6a	10.0%	4.8%	8.5%	75.0%	9.7%
		% of Total	1.0%	1.9%	3.9%	2.9%	9.7%
		Std. Residual	.0	-1.0	-.3	4.2	
Total	Count		10	42	47	4	103
	% within Electronic_5a		9.7%	40.8%	45.6%	3.9%	100.0%
	% within Electronic_6a		100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total		9.7%	40.8%	45.6%	3.9%	100.0%

Chi-Square Tests			
	Value	df	sided)
Pearson Chi-	41.689 ^a	9	.000
Likelihood Ratio	24.335	9	.004
Linear-by-Linear	7.372	1	.007
N of Valid Cases	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.636	.000
	Cramer's V	.367	.000
N of Valid Cases		103	

There is an association between electronic office databases (frequency of use) and electronic office databases (effectiveness of use) in the stage of ‘refer to planning authority and the guideline for planning requirements’ part of the planning permission process. This significant finding reflects the fact that electronic office databases are used very frequently, and are very effective, at about 75%.

KS tools and techniques in planning permission process

Table 4.23: Cross tabulation (telephone) between frequency and effectiveness of use of KS technologies (tools) in the planning permission process –planning officer will refer to State Planning Department and NPPC

Telephon_5b * Telephon_6b Crosstabulation						
			Telephon_6b			Total
			1.very effective	2.effective	3.fairly effective	
Telephon_5b	1.very frequent	Count	29	16	4	49
		% within Telephon_5b	59.2%	32.7%	8.2%	100.0%
		% within Telephon_6b	72.5%	33.3%	26.7%	47.6%
		% of Total	28.2%	15.5%	3.9%	47.6%
		Std. Residual	2.3	-1.4	-1.2	
	2.frequent	Count	11	31	11	53
		% within Telephon_5b	20.8%	58.5%	20.8%	100.0%
		% within Telephon_6b	27.5%	64.6%	73.3%	51.5%
		% of Total	10.7%	30.1%	10.7%	51.5%
		Std. Residual	-2.1	1.3	1.2	
	3.fairly frequent	Count	0	1	0	1
		% within Telephon_5b	.0%	100.0%	.0%	100.0%
		% within Telephon_6b	.0%	2.1%	.0%	1.0%
		% of Total	.0%	1.0%	.0%	1.0%
		Std. Residual	-.6	.8	-.4	
Total	Count		40	48	15	103
	% within Telephon_5b		38.8%	46.6%	14.6%	100.0%
	% within Telephon_6b		100.0%	100.0%	100.0%	100.0%
	% of Total		38.8%	46.6%	14.6%	100.0%

Chi-Square Tests			
	Value	df	(2-sided)
Pearson Chi-	17.258 ^a	4	.002
Likelihood	18.049	4	.001
Linear-by-	13.444	1	.000
N of Valid	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.409	.002
	Cramer's V	.289	.002
N of Valid Cases		103	

There is an association between telephone (frequency of use) and telephone (effectiveness of use) in the stage of ‘planning officer will refer to State Planning Department and NPPC’ part of the planning permission process. This significant finding reflects the fact that telephones are used very frequently, and are very effective, at about 59.2%.

KS tools and techniques in planning permission process

Table 4.24: Cross tabulation (knowledge based system) between frequency and effectiveness of use of KS technologies (tools) in the planning permission process – planning officer will refer to State Planning Department and NPPC

knowledge base system_5b * knowledge base system_6b Crosstabulation							
			System_6b				
			1.very effective	2.effective	3.fairly effective	4.not effective at all	Total
System_5b	1.very frequent	Count	3	0	1	1	5
		% within System_5b	60.0%	.0%	20.0%	20.0%	100.0%
		% within System_6b	27.3%	.0%	2.2%	25.0%	4.9%
		% of Total	2.9%	.0%	1.0%	1.0%	4.9%
		Std. Residual	3.4	-1.4	-.8	1.8	
	2.frequent	Count	5	26	24	0	55
		% within System_5b	9.1%	47.3%	43.6%	.0%	100.0%
		% within System_6b	45.5%	60.5%	53.3%	.0%	53.4%
		% of Total	4.9%	25.2%	23.3%	.0%	53.4%
		Std. Residual	-.4	.6	.0	-1.5	
	3.fairly frequent	Count	3	13	18	1	35
		% within System_5b	8.6%	37.1%	51.4%	2.9%	100.0%
		% within System_6b	27.3%	30.2%	40.0%	25.0%	34.0%
		% of Total	2.9%	12.6%	17.5%	1.0%	34.0%
		Std. Residual	-.4	-.4	.7	-.3	
	4.not frequent at all	Count	0	4	2	2	8
		% within System_5b	.0%	50.0%	25.0%	25.0%	100.0%
		% within System_6b	.0%	9.3%	4.4%	50.0%	7.8%
		% of Total	.0%	3.9%	1.9%	1.9%	7.8%
		Std. Residual	-.9	.4	-.8	3.0	
Total		Count	11	43	45	4	103
		% within System_5b	10.7%	41.7%	43.7%	3.9%	100.0%
		% within System_6b	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	10.7%	41.7%	43.7%	3.9%	100.0%

Chi-Square Tests			
	Value	df	(2-sided)
Pearson Chi-	31.839 ^a	9	.000
Likelihood	24.424	9	.004
Linear-by -	3.790	1	.052
N of Valid	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.556	.000
	Cramer's V	.321	.000
N of Valid Cases		103	

There is an association between knowledge based system (frequency of use) and knowledge based system (effectiveness of use) in the stage of ‘planning officer will refer to State Planning Department and NPPC’ part of the planning permission process. This significant finding reflects the fact that knowledge base system is used very frequently, and that it is very effective, at about 60.0%.

KS tools and techniques in planning permission process

- KS techniques

Table 4.25: Cross tabulation (Project Review) between frequency and effectiveness of use of KS techniques in the planning permission process – refer to planning authority and the guideline for planning requirements

Project review_5a * Project review_6a Crosstabulation							
			Project_6a				
			1.very effective	2.effective	3.fairly effective	4.not effective at all	Total
Project_5a	1.very frequent	Count	7	26	3	0	36
		% within Project_5a	19.4%	72.2%	8.3%	.0%	100.0%
		% within Project_6a	29.2%	45.6%	14.3%	.0%	35.0%
		% of Total	6.8%	25.2%	2.9%	.0%	35.0%
		Std. Residual	-.5	1.4	-1.6	-.6	
	2.frequent	Count	14	16	12	0	42
		% within Project_5a	33.3%	38.1%	28.6%	.0%	100.0%
		% within Project_6a	58.3%	28.1%	57.1%	.0%	40.8%
		% of Total	13.6%	15.5%	11.7%	.0%	40.8%
		Std. Residual	1.3	-1.5	1.2	-.6	
	3.fairly frequent	Count	1	11	6	0	18
		% within Project_5a	5.6%	61.1%	33.3%	.0%	100.0%
		% within Project_6a	4.2%	19.3%	28.6%	.0%	17.5%
		% of Total	1.0%	10.7%	5.8%	.0%	17.5%
		Std. Residual	-1.6	.3	1.2	-.4	
	4.not frequent at all	Count	2	4	0	1	7
		% within Project_5a	28.6%	57.1%	.0%	14.3%	100.0%
		% within Project_6a	8.3%	7.0%	.0%	100.0%	6.8%
		% of Total	1.9%	3.9%	.0%	1.0%	6.8%
		Std. Residual	.3	.1	-1.2	3.6	
Total		Count	24	57	21	1	103
		% within Project_5a	23.3%	55.3%	20.4%	1.0%	100.0%
		% within Project_6a	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	23.3%	55.3%	20.4%	1.0%	100.0%

Chi-Square Tests			
	Value	df	sided)
Pearson Chi-	29.350 ^a	9	.001
Likelihood Ratio	23.783	9	.005
Linear-by-Linear	2.043	1	.153
N of Valid Cases	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.534	.001
	Cramer's V	.308	.001
N of Valid Cases		103	

There is an association between project review (frequency of use) and project review (effectiveness of use) in the stage of ‘refer to planning authority and the guideline for planning requirements’ part of planning permission process. This significant finding reflects the fact that when the project review is used very frequently, it is effective, at about 91.6%.

KS tools and techniques in planning permission process

Table 4.26: Cross tabulation (Project Review) between frequency and effectiveness of use of KS techniques in planning permission process – planning officer will refer to State Planning Department and NPPC

Project review_5b * Project review_6b Crosstabulation						
			Project_6b			
			1.very effective	2.effective	3.fairly effective	4.not effective at all
Project_5b	1.very frequent	Count	29	6	3	2
		% within Project_5b	72.5%	15.0%	7.5%	5.0%
		% within Project_6b	72.5%	13.3%	21.4%	50.0%
		% of Total	28.2%	5.8%	2.9%	1.9%
		Std. Residual	3.4	-2.7	-1.0	.4
	2.frequent	Count	9	27	7	1
		% within Project_5b	20.5%	61.4%	15.9%	2.3%
		% within Project_6b	22.5%	60.0%	50.0%	25.0%
		% of Total	8.7%	26.2%	6.8%	1.0%
		Std. Residual	-2.0	1.8	.4	-.5
	3.fairly frequent	Count	2	8	3	1
		% within Project_5b	14.3%	57.1%	21.4%	7.1%
		% within Project_6b	5.0%	17.8%	21.4%	25.0%
		% of Total	1.9%	7.8%	2.9%	1.0%
		Std. Residual	-1.5	.8	.8	.6
	4.not frequent at all	Count	0	4	1	0
		% within Project_5b	.0%	80.0%	20.0%	.0%
		% within Project_6b	.0%	8.9%	7.1%	.0%
		% of Total	.0%	3.9%	1.0%	.0%
		Std. Residual	-1.4	1.2	.4	-.4
Total		Count	40	45	14	4
		% within Project_5b	38.8%	43.7%	13.6%	3.9%
		% within Project_6b	100.0%	100.0%	100.0%	100.0%
		% of Total	38.8%	43.7%	13.6%	3.9%

Chi-Square Tests			
	Value	df	(2-sided)
Pearson Chi-	35.435 ^a	9	.000
Likelihood	38.615	9	.000
Linear-by-	12.498	1	.000
N of Valid	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by	Phi	.587	.000
Nominal	Cramer's V	.339	.000
N of Valid Cases		103	

There is an association between project review (frequency of use) and project review (effectiveness of use) in the stage of ‘planning officer will refer to state planning department and NPPC’ part of planning permission process. This significant finding reflects the fact that when project review is used very frequently, it is very effective, at about 72.5%.

KS tools and techniques in planning permission process

Table 4.27: Cross tabulation (Non-electronic work manuals) between frequency and effectiveness of used of KS techniques in the planning permission process – planning officer will refer to State Planning Department and NPPC

Non-electronic work manual_5b * Non-electronic work manual_6b Crosstabulation							
			Manual_6b				Total
			1.very effective	2.effective	3.fairly effective	4.not effective at all	
Manual_5b	1.very frequent	Count	5	19	11	1	36
		% within Manual_5b	13.9%	52.8%	30.6%	2.8%	100.0%
		% within Manual_6b	22.7%	43.2%	34.4%	20.0%	35.0%
		% of Total	4.9%	18.4%	10.7%	1.0%	35.0%
		Std. Residual	-1.0	.9	-.1	-.6	
	2.frequent	Count	14	16	12	0	42
		% within Manual_5b	33.3%	38.1%	28.6%	.0%	100.0%
		% within Manual_6b	63.6%	36.4%	37.5%	.0%	40.8%
		% of Total	13.6%	15.5%	11.7%	.0%	40.8%
		Std. Residual	1.7	-.5	-.3	-1.4	
	3.fairly frequent	Count	3	8	7	0	18
		% within Manual_5b	16.7%	44.4%	38.9%	.0%	100.0%
		% within Manual_6b	13.6%	18.2%	21.9%	.0%	17.5%
		% of Total	2.9%	7.8%	6.8%	.0%	17.5%
		Std. Residual	-.4	.1	.6	-.9	
	4.not frequent at all	Count	0	1	2	4	7
		% within Manual_5b	.0%	14.3%	28.6%	57.1%	100.0%
		% within Manual_6b	.0%	2.3%	6.3%	80.0%	6.8%
		% of Total	.0%	1.0%	1.9%	3.9%	6.8%
		Std. Residual	-1.2	-1.2	-.1	6.3	
Total		Count	22	44	32	5	103
		% within Manual_5b	21.4%	42.7%	31.1%	4.9%	100.0%
		% within Manual_6b	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	21.4%	42.7%	31.1%	4.9%	100.0%

Chi-Square Tests			
	Value	df	(2-sided)
Pearson Chi-	50.954 ^a	9	.000
Likelihood	28.524	9	.001
Linear-by -	5.003	1	.025
N of Valid	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by	Phi	.703	.000
Nominal	Cramer's V	.406	.000
N of Valid Cases		103	

There is an association between non-electronic work manuals (frequency of use) and non-electronic work manuals (effectiveness of use) in the stage of the 'planning officer will refer to State Planning Department and NPPC' part of the planning permission process. This significant finding reflects the fact that when non-electronic work manuals are used very frequently, they are effective, at about 66.7%.

KS tools and techniques in planning permission process

Table 4.28: Cross tabulation (Communities of practice) between frequency and effectiveness of use of KS techniques in the planning permission process – planning officer will refer to State Planning Department and NPPC

Communities Of Practice_5b * Communities Of Practice_6b Crosstabulation						
			COP_6b			
			1.very effective	2.effective	3.fairly effective	Total
COP_5b	1.very frequent	Count	9	13	5	27
		% within COP_5b	33.3%	48.1%	18.5%	100.0%
		% within COP_6b	42.9%	25.0%	16.7%	26.2%
		% of Total	8.7%	12.6%	4.9%	26.2%
	2.frequent	Count	7	25	18	50
		% within COP_5b	14.0%	50.0%	36.0%	100.0%
		% within COP_6b	33.3%	48.1%	60.0%	48.5%
		% of Total	6.8%	24.3%	17.5%	48.5%
	3.fairly frequent	Count	0	13	6	19
		% within COP_5b	.0%	68.4%	31.6%	100.0%
		% within COP_6b	.0%	25.0%	20.0%	18.4%
		% of Total	.0%	12.6%	5.8%	18.4%
	4.not frequent at all	Count	5	1	1	7
		% within COP_5b	71.4%	14.3%	14.3%	100.0%
		% within COP_6b	23.8%	1.9%	3.3%	6.8%
		% of Total	4.9%	1.0%	1.0%	6.8%
Total		Count	21	52	30	103
		% within COP_5b	20.4%	50.5%	29.1%	100.0%
		% within COP_6b	100.0%	100.0%	100.0%	100.0%
		% of Total	20.4%	50.5%	29.1%	100.0%

Chi-Square Tests			
	Value	df	sided)
Pearson Chi-	21.520 ^a	6	.001
Likelihood	22.431	6	.001
Linear-by -	.060	1	.806
N of Valid	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by	Phi	.457	.001
Nominal	Cramer's V	.323	.001
	Contingency	.416	.001
N of Valid Cases		103	

There is an association between communities of practice (frequency of use) and communities of practice (effectiveness of use) in the stage of ‘planning officer will refer to State Planning Department and NPPC’ part of the planning permission process. This significant finding reflects the fact that when communities of practice are used very frequently they are effective, at about 81.4%.

Taking the above into consideration, overall, the following can be recognised as important factors concerning the correlation between the frequency and the effectiveness of use of KS technologies (tools) and techniques in the two stages of the planning permission process:

1. Telephone
2. Knowledge base system
3. Electronic office databases
4. Project review
5. Non-electronic work manuals
6. Communities of practice

There are a number of strengths of associations between the frequency and the effectiveness of use of KS technologies and techniques. Most of the strengths of association range between 0.28 and 0.41, which represents a medium association.

4.7.6 Correlations between frequency and freely exploits or to gain benefit of KS technologies (tools) and KS techniques in the planning permission process.

Further examination was conducted to identify the correlation between the frequency and freely exploits or to gain benefit of KS technologies (tools) and KS techniques in the planning permission process. For a closer look to identify whether the correlation between the frequency and freely exploits or to gain benefit of KS technologies (tools) and KS techniques have an impact on the results discussed (Table 4.29, Table 4.30, Table 4.31, Table 4.32, Table 4.33 – KS technologies; table 4.34, table 4.35, Table 4.36, Table 4.37 – KS techniques). The test of the null hypothesis was used to investigate.

Null hypothesis H0- There is no correlations between the frequencies and freely exploit or to gain benefit of knowledge sharing technologies (tools) and techniques approach in the planning permission process.

KS tools and techniques in planning permission process

The tables below show the correlation between frequency and freely exploits or to gain benefit of use:

- KS Technologies (tools)

Table 4.29: Cross tabulation (electronic office databases) between frequency and freely exploits or to gain benefit of use of KS technologies (tools) in the planning permission process – refer to planning authority and the guideline for planning requirements

Electronic_5a * Electronic_4a Crosstabulation						
			Electronic_4a			
			1.very high level exploitation	2.high level of exploitation	3.low level of exploitation	Total
Electronic_5a	1.very frequent	Count	2	2	0	4
		% within Electronic_5a	50.0%	50.0%	.0%	100.0%
		% within Electronic_4a	5.7%	4.3%	.0%	3.9%
		% of Total	1.9%	1.9%	.0%	3.9%
	2.frequent	Count	27	26	7	60
		% within Electronic_5a	45.0%	43.3%	11.7%	100.0%
		% within Electronic_4a	77.1%	56.5%	31.8%	58.3%
		% of Total	26.2%	25.2%	6.8%	58.3%
	3.fairly frequent	Count	4	14	11	29
		% within Electronic_5a	13.8%	48.3%	37.9%	100.0%
		% within Electronic_4a	11.4%	30.4%	50.0%	28.2%
		% of Total	3.9%	13.6%	10.7%	28.2%
	4.not frequent at all	Count	2	4	4	10
		% within Electronic_5a	20.0%	40.0%	40.0%	100.0%
		% within Electronic_4a	5.7%	8.7%	18.2%	9.7%
		% of Total	1.9%	3.9%	3.9%	9.7%
Total		Count	35	46	22	103
		% within Electronic_5a	34.0%	44.7%	21.4%	100.0%
		% within Electronic_4a	100.0%	100.0%	100.0%	100.0%
		% of Total	34.0%	44.7%	21.4%	100.0%

Chi-Square Tests			
	Value	df	sided)
Pearson Chi-	15.531 ^a	6	.017
Likelihood Ratio	16.747	6	.010
Linear-by-Linear	12.053	1	.001
N of Valid Cases	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.388	.017
	Cramer's V	.275	.017
	Contingency Coefficient	.362	.017
	N of Valid Cases	103	

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There is an association between electronic office databases (frequency of use) and electronic office databases (freely exploits or to gain benefit of use) in the stage of ‘refer to planning authority and the guideline for planning requirements’ of the planning permission process. This significant finding reflects the fact that when electronic office databases are used very frequently, there is a high level of exploitation, at about 100%.

Table 4.30: Cross tabulation (Internet) between frequency and freely exploits or to gain benefit of use of KS technologies (tools) in the planning permission process – refer to planning authority and the guideline for planning requirements

Internet_5a * Internet_4a Crosstabulation							
			Internet_4a				Total
			1.very high level exploitation	2.high level of exploitation	3.low level of exploitation	4.no exploitation at all	
Internet_5a	1.very frequent	Count	4	5	1	1	11
		% within Internet_5a	36.4%	45.5%	9.1%	9.1%	100.0%
		% within Internet_4a	9.3%	13.2%	7.7%	11.1%	10.7%
		% of Total	3.9%	4.9%	1.0%	1.0%	10.7%
	2.frequent	Count	24	12	3	4	43
		% within Internet_5a	55.8%	27.9%	7.0%	9.3%	100.0%
		% within Internet_4a	55.8%	31.6%	23.1%	44.4%	41.7%
		% of Total	23.3%	11.7%	2.9%	3.9%	41.7%
	3.fairly frequent	Count	12	19	5	1	37
		% within Internet_5a	32.4%	51.4%	13.5%	2.7%	100.0%
		% within Internet_4a	27.9%	50.0%	38.5%	11.1%	35.9%
		% of Total	11.7%	18.4%	4.9%	1.0%	35.9%
	4.not frequent at all	Count	3	2	4	3	12
		% within Internet_5a	25.0%	16.7%	33.3%	25.0%	100.0%
		% within Internet_4a	7.0%	5.3%	30.8%	33.3%	11.7%
		% of Total	2.9%	1.9%	3.9%	2.9%	11.7%
Total	Count	43	38	13	9	103	
	% within Internet_5a	41.7%	36.9%	12.6%	8.7%	100.0%	
	% within Internet_4a	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	41.7%	36.9%	12.6%	8.7%	100.0%	

Chi-Square Tests			
	Value	df	sided)
Pearson Chi-	18.764 ^a	9	.027
Likelihood Ratio	17.251	9	.045
Linear-by-Linear	3.931	1	.047
N of Valid Cases	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.427	.027
	Cramer's V	.246	.027
	Contingency Coefficient	.393	.027
	N of Valid Cases	103	

There is an association between the Internet (frequency of use) and Internet (freely exploits or to gain benefit of use) in the stage of ‘refer to planning authority and the guideline

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for planning requirements' of the planning permission process. This significant finding reflects the fact that when the Internet is used very frequently, there is a high level of exploitation, at about 81.9%.

Table 4.31: Cross tabulation (telephone) between frequency and freely exploits or to gain benefit of use of KS technologies (tools) in the planning permission process – planning officer will refer to State Planning Department and NPPC

Telephone_5b * Telephone_4b Crosstabulation							
			Telephone_4b				Total
			1.very high level exploitation	2.high level of exploitation	3.low level of exploitation	4.no exploitation at all	
Telephone_5b	1.very frequent	Count	1	8	31	9	49
		% within Telephone_5b	2.0%	16.3%	63.3%	18.4%	100.0%
		% within Telephone_4b	33.3%	34.8%	50.8%	56.3%	47.6%
		% of Total	1.0%	7.8%	30.1%	8.7%	47.6%
	2.frequent	Count	1	15	30	7	53
		% within Telephone_5b	1.9%	28.3%	56.6%	13.2%	100.0%
		% within Telephone_4b	33.3%	65.2%	49.2%	43.8%	51.5%
		% of Total	1.0%	14.6%	29.1%	6.8%	51.5%
	3.fairly frequent	Count	1	0	0	0	1
		% within Telephone_5b	100.0%	.0%	.0%	.0%	100.0%
		% within Telephone_4b	33.3%	.0%	.0%	.0%	1.0%
		% of Total	1.0%	.0%	.0%	.0%	1.0%
Total		Count	3	23	61	16	103
		% within Telephone_5b	2.9%	22.3%	59.2%	15.5%	100.0%
		% within Telephone_4b	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	2.9%	22.3%	59.2%	15.5%	100.0%

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	35.925 ^a	6	.000
Likelihood Ratio	9.715	6	.137
Linear-by-Linear	3.726	1	.054
N of Valid Cases	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.591	.000
	Cramer's V	.418	.000
	Contingency	.509	.000
N of Valid Cases		103	

There is an association between telephone (frequency of use) and telephone (freely exploits or to gain benefit of use) in the stage of the 'planning officer will refer to State Planning Department and NPPC' of the planning permission process. This significant finding reflects the fact that when telephones are used frequently, there is a high level of exploitation, at about 48.5%.

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Table 4.32: Cross tabulation (electronic office databases) between frequency and freely exploits or to gain benefit of use of KS technologies (tools) in the planning permission process – planning officer will refer to State Planning Department and NPPC

Electronic office databases_5b * Electronic office databases_4b Crosstabulation							
			Electronic_4b				Total
			1.very high level exploitation	2.high level of exploitation	3.low level of exploitation	4.no exploitation at all	
Electronic_5b	1.very frequent	Count	4	6	1	1	12
		% within Electronic_5b	33.3%	50.0%	8.3%	8.3%	100.0%
		% within Electronic_4b	9.8%	16.2%	5.9%	12.5%	11.7%
		% of Total	3.9%	5.8%	1.0%	1.0%	11.7%
	2.frequent	Count	23	11	5	3	42
		% within Electronic_5b	54.8%	26.2%	11.9%	7.1%	100.0%
		% within Electronic_4b	56.1%	29.7%	29.4%	37.5%	40.8%
		% of Total	22.3%	10.7%	4.9%	2.9%	40.8%
	3.fairly frequent	Count	10	18	7	1	36
		% within Electronic_5b	27.8%	50.0%	19.4%	2.8%	100.0%
		% within Electronic_4b	24.4%	48.6%	41.2%	12.5%	35.0%
		% of Total	9.7%	17.5%	6.8%	1.0%	35.0%
	4.not frequent at all	Count	4	2	4	3	13
		% within Electronic_5b	30.8%	15.4%	30.8%	23.1%	100.0%
		% within Electronic_4b	9.8%	5.4%	23.5%	37.5%	12.6%
		% of Total	3.9%	1.9%	3.9%	2.9%	12.6%
Total		Count	41	37	17	8	103
		% within Electronic_5b	39.8%	35.9%	16.5%	7.8%	100.0%
		% within Electronic_4b	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	39.8%	35.9%	16.5%	7.8%	100.0%

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.261 ^a	9	.045
Likelihood Ratio	16.286	9	.061
Linear-by-Linear	3.802	1	.051
N of Valid Cases	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.409	.045
	Cramer's V	.236	.045
	Contingency	.379	.045
N of Valid Cases		103	

There is an association between electronic office databases (frequency of use) and electronic office databases (freely exploits or to gain benefit of use) in the stage of ‘planning officer will refer to State Planning Department and NPPC’ of the planning permission process. This significant finding reflects the fact that when electronic office databases are used very frequently, there is a high level of exploitation, at about 83.3%.

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Table 4.33: Cross tabulation (Internet) between frequency and freely exploits or to gain benefit of use of KS technologies (tools) in the planning permission process – planning officer will refer to State Planning Department and NPPC

Internet_5b * Internet_4b Crosstabulation						
			Internet_4b			Total
			1.very high level ex ploitation	2.high level of ex ploitation	3.low level of ex ploitation	
Internet_5b	1.very frequent	Count	0	6	0	6
		% within Internet_5b	.0%	100.0%	.0%	100.0%
		% within Internet_4b	.0%	13.0%	.0%	5.8%
		% of Total	.0%	5.8%	.0%	5.8%
	2.frequent	Count	22	24	7	53
		% within Internet_5b	41.5%	45.3%	13.2%	100.0%
		% within Internet_4b	66.7%	52.2%	29.2%	51.5%
		% of Total	21.4%	23.3%	6.8%	51.5%
	3.fairly frequent	Count	7	13	11	31
		% within Internet_5b	22.6%	41.9%	35.5%	100.0%
		% within Internet_4b	21.2%	28.3%	45.8%	30.1%
		% of Total	6.8%	12.6%	10.7%	30.1%
	4.not frequent at all	Count	4	3	6	13
		% within Internet_5b	30.8%	23.1%	46.2%	100.0%
		% within Internet_4b	12.1%	6.5%	25.0%	12.6%
		% of Total	3.9%	2.9%	5.8%	12.6%
Total	Count	33	46	24	103	
	% within Internet_5b	32.0%	44.7%	23.3%	100.0%	
	% within Internet_4b	100.0%	100.0%	100.0%	100.0%	
	% of Total	32.0%	44.7%	23.3%	100.0%	

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	18.408 ^a	6	.005
Likelihood Ratio	20.420	6	.002
Linear-by-Linear	4.416	1	.036
N of Valid Cases	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.423	.005
	Cramer's V	.299	.005
	Contingency	.389	.005
N of Valid Cases		103	

There is an association between the Internet (frequency of use) and Internet (freely exploits or to gain benefit of use) in the stage of ‘planning officer will refer to State Planning Department and NPPC’ of the planning permission process. This significant finding reflects the fact that when the Internet is used very frequently, there is a high level of exploitation, at about 100%.

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Table 4.34: Cross tabulation (Non-electronic work manual documents) between frequency and freely exploits or to gain benefit of use of KS techniques in the planning permission process – refer to planning authority and the guideline for planning requirements

Non-electronic work manual document 5a * Non-electronic work manual document 4a Crosstabulation						
			Manual_4a			Total
			2.high level of exploitation	3.low level of exploitation	4.no exploitation at all	
Manual_5a	1.very frequent	Count	29	10	2	41
		% within Manual_5a	70.7%	24.4%	4.9%	100.0%
		% within Manual_4a	47.5%	29.4%	25.0%	39.8%
		% of Total	28.2%	9.7%	1.9%	39.8%
	2.frequent	Count	28	13	3	44
		% within Manual_5a	63.6%	29.5%	6.8%	100.0%
		% within Manual_4a	45.9%	38.2%	37.5%	42.7%
		% of Total	27.2%	12.6%	2.9%	42.7%
	3.fairly frequent	Count	3	10	2	15
		% within Manual_5a	20.0%	66.7%	13.3%	100.0%
		% within Manual_4a	4.9%	29.4%	25.0%	14.6%
		% of Total	2.9%	9.7%	1.9%	14.6%
	4.not frequent at all	Count	1	1	1	3
		% within Manual_5a	33.3%	33.3%	33.3%	100.0%
		% within Manual_4a	1.6%	2.9%	12.5%	2.9%
		% of Total	1.0%	1.0%	1.0%	2.9%
Total	Count	61	34	8	103	
	% within Manual_5a	59.2%	33.0%	7.8%	100.0%	
	% within Manual_4a	100.0%	100.0%	100.0%	100.0%	
	% of Total	59.2%	33.0%	7.8%	100.0%	

Chi-Square Tests			
	Value	df	sided)
Pearson Chi-	15.143 ^a	6	.019
Likelihood Ratio	14.236	6	.027
Linear-by-Linear	9.408	1	.002
N of Valid Cases	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.383	.019
	Cramer's V	.271	.019
	Contingency	.358	.019
N of Valid Cases		103	

There is an association between non-electronic work manual documents (frequency of use) and non-electronic work manual documents (freely exploits or to gain benefit of use) in the stage of 'refer to planning authority and the guideline for planning requirements' of the planning permission process. This significant finding reflects the fact that when non-electronic work manual documents are used very frequently, there is a high level of exploitation, at about 70.7%.

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Table 4.35: Cross tabulation (Training) between frequency and freely exploits or to gain benefit of use of KS techniques in the planning permission process – refer to planning authority and the guideline for planning requirements

Training_5a * Training_4a Crosstabulation							
			Training_4a				
			1.very high level exploitation	2.high level of exploitation	3.low level of exploitation	4.no exploitation at all	Total
Training_5a	1.very frequent	Count	0	12	3	2	17
		% within Training_5a	.0%	70.6%	17.6%	11.8%	100.0%
		% within Training_4a	.0%	27.9%	8.3%	15.4%	16.5%
		% of Total	.0%	11.7%	2.9%	1.9%	16.5%
	2.frequent	Count	9	20	16	4	49
		% within Training_5a	18.4%	40.8%	32.7%	8.2%	100.0%
		% within Training_4a	81.8%	46.5%	44.4%	30.8%	47.6%
		% of Total	8.7%	19.4%	15.5%	3.9%	47.6%
	3.fairly frequent	Count	1	9	13	3	26
		% within Training_5a	3.8%	34.6%	50.0%	11.5%	100.0%
		% within Training_4a	9.1%	20.9%	36.1%	23.1%	25.2%
		% of Total	1.0%	8.7%	12.6%	2.9%	25.2%
	4.not frequent at all	Count	1	2	4	4	11
		% within Training_5a	9.1%	18.2%	36.4%	36.4%	100.0%
		% within Training_4a	9.1%	4.7%	11.1%	30.8%	10.7%
		% of Total	1.0%	1.9%	3.9%	3.9%	10.7%
Total	Count	11	43	36	13	103	
	% within Training_5a	10.7%	41.7%	35.0%	12.6%	100.0%	
	% within Training_4a	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	10.7%	41.7%	35.0%	12.6%	100.0%	

Chi-Square Tests			
	Value	df	sided)
Pearson Chi-	19.807 ^a	9	.01
Likelihood Ratio	19.911	9	.01
Linear-by-Linear	5.548	1	.01
N of Valid Cases	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.439	.019
	Cramer's V	.253	.019
	Contingency	.402	.019
N of Valid Cases		103	

There is an association between training (frequency of use) and training (freely exploits or to gain benefit of use) in the stage of 'refer to planning authority and the guideline for planning requirements' of the planning permission process. This significant finding reflects the fact that when training is used very frequently, there is a high level of exploitation, at about 70.6%.

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Table 4.36: Cross tabulation (communities of practice) between frequency and freely exploits or to gain benefit of use of KS techniques in the planning permission process – planning officer will refer to State Planning Department and NPPC

Communities of practice_5b * Communities of practice_4b Crosstabulation							
			COP_4b				
			1.very high level exploitation	2.high level of exploitation	3.low level of exploitation	4.no exploitation at all	Total
COP_5b	1.very frequent	Count	11	13	2	1	27
		% within COP_5b	40.7%	48.1%	7.4%	3.7%	100.0%
		% within COP_4b	55.0%	25.0%	10.5%	8.3%	26.2%
		% of Total	10.7%	12.6%	1.9%	1.0%	26.2%
	2.frequent	Count	9	23	13	5	50
		% within COP_5b	18.0%	46.0%	26.0%	10.0%	100.0%
		% within COP_4b	45.0%	44.2%	68.4%	41.7%	48.5%
		% of Total	8.7%	22.3%	12.6%	4.9%	48.5%
	3.fairly frequent	Count	0	11	2	6	19
		% within COP_5b	.0%	57.9%	10.5%	31.6%	100.0%
		% within COP_4b	.0%	21.2%	10.5%	50.0%	18.4%
		% of Total	.0%	10.7%	1.9%	5.8%	18.4%
	4.not frequent at all	Count	0	5	2	0	7
		% within COP_5b	.0%	71.4%	28.6%	.0%	100.0%
		% within COP_4b	.0%	9.6%	10.5%	.0%	6.8%
		% of Total	.0%	4.9%	1.9%	.0%	6.8%
Total	Count	20	52	19	12	103	
	% within COP_5b	19.4%	50.5%	18.4%	11.7%	100.0%	
	% within COP_4b	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	19.4%	50.5%	18.4%	11.7%	100.0%	

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	25.704 ^a	9	.002
Likelihood Ratio	28.835	9	.001
Linear-by-Linear	9.470	1	.002
N of Valid Cases	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.500	.002
	Cramer's V	.288	.002
	Contingency	.447	.002
N of Valid Cases		103	

There is an association between communities of practice (frequency of use) and communities of practice (freely exploits or to gain benefit of use) in the stage of ‘planning officer will refer to State Planning Department and NPPC’ of the planning permission process. This significant finding reflects the fact that when communities of practice are used frequently, there is a high level of exploitation, at about 88.8%.

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Table 4.37: Cross tabulation (training) between frequency and freely exploits or to gain benefit of use of KS techniques in the planning permission process – planning officer will refer to State Planning Department and NPPC

Training_5b * Training_4b Crosstabulation							
			Training_4b				Total
			1.very high level exploitation	2.high level of exploitation	3.low level of exploitation	4.no exploitation at all	
Training_5b	1.very frequent	Count	10	2	1	3	16
		% within Training_5b	62.5%	12.5%	6.3%	18.8%	100.0%
		% within Training_4b	50.0%	5.3%	2.9%	27.3%	15.5%
		% of Total	9.7%	1.9%	1.0%	2.9%	15.5%
	2.frequent	Count	9	24	11	4	48
		% within Training_5b	18.8%	50.0%	22.9%	8.3%	100.0%
		% within Training_4b	45.0%	63.2%	32.4%	36.4%	46.6%
		% of Total	8.7%	23.3%	10.7%	3.9%	46.6%
	3.fairly frequent	Count	1	11	12	3	27
		% within Training_5b	3.7%	40.7%	44.4%	11.1%	100.0%
		% within Training_4b	5.0%	28.9%	35.3%	27.3%	26.2%
		% of Total	1.0%	10.7%	11.7%	2.9%	26.2%
	4.not frequent at all	Count	0	1	10	1	12
		% within Training_5b	.0%	8.3%	83.3%	8.3%	100.0%
		% within Training_4b	.0%	2.6%	29.4%	9.1%	11.7%
		% of Total	.0%	1.0%	9.7%	1.0%	11.7%
Total		Count	20	38	34	11	103
		% within Training_5b	19.4%	36.9%	33.0%	10.7%	100.0%
		% within Training_4b	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	19.4%	36.9%	33.0%	10.7%	100.0%

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	45.164 ^a	9	.000
Likelihood Ratio	44.343	9	.000
Linear-by-Linear Association	15.233	1	.000
N of Valid Cases	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.662	.000
	Cramer's V	.382	.000
	Contingency Coefficient	.552	.000
N of Valid Cases		103	

There is an association between training (frequency of use) and training (freely exploits or to gain benefit of use) in the stage of ‘planning officer will refer to State Planning Department and NPPC’ of the planning permission process. This significant finding reflects the fact that when training is used very frequently, there is a high level of exploitation, at about 75%.

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Taking the above into consideration, overall, the following can be recognised; the correlation between frequency and the exploitation of use (freely exploits or to gain benefit of use) of KS technologies (tools) and techniques in the two stages of planning permission process are:

1. Telephone
2. Electronic office databases
3. Internet
4. Non-electronic work manuals
5. Training
6. Communities of practice

There are a number of strengths of association between the frequency and the exploitation of use of KS technologies and techniques. Most of the strengths of association range between 0.23 and 0.42, which represents a medium association.

4.7.7 Correlations between freely exploits or to gain benefit and the effectiveness of use of KS technologies (tools) and KS techniques in the planning permission process.

A Further examination was conducted to identify the correlations between freely exploits or to gain benefit and the effectiveness of use of KS technologies (tools) and KS techniques in the planning permission process. For a closer look to identify whether the correlation between freely exploits or to gain benefit and the effectiveness of use of KS technologies (tools)- (Table 4.38, Table 4.39, Table 4.40, Table 4.41) ; and KS techniques have an impact on the results discussed (Table 4.42, Table 4.43, Table 4.44, Table 4.45, Table 4.46, Table 4.47). The test of the null hypothesis was used to investigate.

Null hypothesis H0- There is no correlations between freely exploits or to gain benefit and the effectiveness of use of KS technologies (tools) and KS techniques in the planning permission process

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The tables below show the correlations between freely exploits or to gain benefit and the effectiveness of use:

- KS technologies (tools) - Table 4.38, Table 4.39, Table 4.40, Table 4.41

Table 4.38: Cross tabulation (Internet) between freely exploits or to gain benefit and effectiveness of use of KS technologies (tools) in the planning permission process – refer to planning authority and the guideline for planning requirements

Internet_4a * Internet_6a Crosstabulation							
			Internet_6a				
			1.very effective	2.effective	3.fairly effective	4.not effective at all	Total
Internet_4a	1.very high level exploitation	Count	4	27	12	0	43
		% within Internet_4a	9.3%	62.8%	27.9%	.0%	100.0%
		% within Internet_6a	57.1%	54.0%	27.9%	.0%	41.7%
		% of Total	3.9%	26.2%	11.7%	.0%	41.7%
	2.high level of exploitation	Count	2	19	17	0	38
		% within Internet_4a	5.3%	50.0%	44.7%	.0%	100.0%
		% within Internet_6a	28.6%	38.0%	39.5%	.0%	36.9%
		% of Total	1.9%	18.4%	16.5%	.0%	36.9%
	3.low level of exploitation	Count	1	3	7	2	13
		% within Internet_4a	7.7%	23.1%	53.8%	15.4%	100.0%
		% within Internet_6a	14.3%	6.0%	16.3%	66.7%	12.6%
		% of Total	1.0%	2.9%	6.8%	1.9%	12.6%
	4.no exploitation at all	Count	0	1	7	1	9
		% within Internet_4a	.0%	11.1%	77.8%	11.1%	100.0%
		% within Internet_6a	.0%	2.0%	16.3%	33.3%	8.7%
		% of Total	.0%	1.0%	6.8%	1.0%	8.7%
Total		Count	7	50	43	3	103
		% within Internet_4a	6.8%	48.5%	41.7%	2.9%	100.0%
		% within Internet_6a	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	6.8%	48.5%	41.7%	2.9%	100.0%

Chi-Square Tests			
	Value	df	(2-sided)
Pearson Chi-	23.993 ^a	9	.004
Likelihood	23.639	9	.005
Linear-by-	15.546	1	.000
N of Valid	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.483	.004
	Cramer's V	.279	.004
	Contingency	.435	.004
N of Valid Cases		103	

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There is an association between the Internet (freely exploits or to gain benefit) and the Internet (effectiveness of used) in the stage of ‘refer to planning authority and guideline of planning requirements’ of the planning permission process. This significant finding reflects the fact that when the Internet is exploited at a very high level, it is effective, at about 72.1%.

Table 4.39: Cross tabulation (intranet) between freely exploits or to gain benefit and effectiveness of use of KS technologies (tools) in the planning permission process – refer to planning authority and the guideline for planning requirements

Intranet_4a * Intranet_6a Crosstabulation							
			Intranet_6a				Total
			1.very effective	2.effective	3.fairly effective	4.not effective at all	
Intranet_4a	1.very high level exploitation	Count	2	11	5	1	19
		% within Intranet_4a	10.5%	57.9%	26.3%	5.3%	100.0%
		% within Intranet_6a	66.7%	22.9%	11.9%	10.0%	18.4%
		% of Total	1.9%	10.7%	4.9%	1.0%	18.4%
	2.high level of exploitation	Count	1	31	12	6	50
		% within Intranet_4a	2.0%	62.0%	24.0%	12.0%	100.0%
		% within Intranet_6a	33.3%	64.6%	28.6%	60.0%	48.5%
		% of Total	1.0%	30.1%	11.7%	5.8%	48.5%
	3.low level of exploitation	Count	0	6	20	2	28
		% within Intranet_4a	.0%	21.4%	71.4%	7.1%	100.0%
		% within Intranet_6a	.0%	12.5%	47.6%	20.0%	27.2%
		% of Total	.0%	5.8%	19.4%	1.9%	27.2%
	4.no exploitation at all	Count	0	0	5	1	6
		% within Intranet_4a	.0%	.0%	83.3%	16.7%	100.0%
		% within Intranet_6a	.0%	.0%	11.9%	10.0%	5.8%
		% of Total	.0%	.0%	4.9%	1.0%	5.8%
Total		Count	3	48	42	10	103
		% within Intranet_4a	2.9%	46.6%	40.8%	9.7%	100.0%
		% within Intranet_6a	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	2.9%	46.6%	40.8%	9.7%	100.0%

Chi-Square Tests			
	Value	df	(2-sided)
Pearson Chi-	29.270 ^a	9	.001
Likelihood	31.180	9	.000
Linear-by-	13.131	1	.000
N of Valid	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.533	.001
	Cramer's V	.308	.001
	Contingency	.470	.001
N of Valid Cases		103	

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There is an association between intranet (freely exploits or to gain benefit) and intranet (effectiveness of use) in the stage of 'refer to planning authority and the guideline for planning requirements' part of the planning permission process. This significant finding reflects the fact that when the intranet is exploited at a very high level, it is effective, at about 68.4%.

Table 4.40: Cross tabulation (Internet) between freely exploits or to gain benefit and effectiveness of use of KS technologies (tools) in the planning permission process – planning officer will refer to State Planning Department and NPPC

Internet_4b * Internet_6b Crosstabulation							
			Internet_6b				
			1.very effective	2.effective	3.fairly effective	4.not effective at all	Total
Internet_4b	1.very high level exploitation	Count	5	22	5	1	33
		% within Internet_4b	15.2%	66.7%	15.2%	3.0%	100.0%
		% within Internet_6b	38.5%	44.0%	15.2%	14.3%	32.0%
		% of Total	4.9%	21.4%	4.9%	1.0%	32.0%
	2.high level of exploitation	Count	5	22	18	1	46
		% within Internet_4b	10.9%	47.8%	39.1%	2.2%	100.0%
		% within Internet_6b	38.5%	44.0%	54.5%	14.3%	44.7%
		% of Total	4.9%	21.4%	17.5%	1.0%	44.7%
	3.low level of exploitation	Count	3	6	10	5	24
		% within Internet_4b	12.5%	25.0%	41.7%	20.8%	100.0%
		% within Internet_6b	23.1%	12.0%	30.3%	71.4%	23.3%
		% of Total	2.9%	5.8%	9.7%	4.9%	23.3%
Total		Count	13	50	33	7	103
		% within Internet_4b	12.6%	48.5%	32.0%	6.8%	100.0%
		% within Internet_6b	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	12.6%	48.5%	32.0%	6.8%	100.0%

Chi-Square Tests			
	Value	df	(2-sided)
Pearson Chi-	18.705 ^a	6	.005
Likelihood	17.887	6	.007
Linear-by-	9.335	1	.002
N of Valid	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by	Phi	.426	.005
Nominal	Cramer's V	.301	.005
	Contingency	.392	.005
N of Valid Cases		103	

There is an association between the Internet (freely exploits or to gain benefit) and the Internet (effectiveness of use) in the stage of 'planning officer will refer to State Planning

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Department and NPPC' of the planning permission process. This significant finding reflects the fact that when the Internet is exploited at a very high level it is effective, at about 81.9%.

Table 4.41: Cross tabulation (telephone) between freely exploits or to gain benefit and effectiveness of use of KS technologies (tools) in the planning permission process – planning officer will refer to State Planning Department and NPPC

Telephon_4b * Telephon_6b Crosstabulation						
			Telephon_6b			
			1.very effective	2.effective	3.fairly effective	Total
Telephon_4b	1.very high level exploitation	Count	2	1	0	3
		% within Telephon_4b	66.7%	33.3%	.0%	100.0%
		% within Telephon_6b	5.0%	2.1%	.0%	2.9%
		% of Total	1.9%	1.0%	.0%	2.9%
	2.high level of exploitation	Count	6	14	3	23
		% within Telephon_4b	26.1%	60.9%	13.0%	100.0%
		% within Telephon_6b	15.0%	29.2%	20.0%	22.3%
		% of Total	5.8%	13.6%	2.9%	22.3%
	3.low level of exploitation	Count	20	31	10	61
		% within Telephon_4b	32.8%	50.8%	16.4%	100.0%
		% within Telephon_6b	50.0%	64.6%	66.7%	59.2%
		% of Total	19.4%	30.1%	9.7%	59.2%
	4.no exploitation at all	Count	12	2	2	16
		% within Telephon_4b	75.0%	12.5%	12.5%	100.0%
		% within Telephon_6b	30.0%	4.2%	13.3%	15.5%
		% of Total	11.7%	1.9%	1.9%	15.5%
Total		Count	40	48	15	103
		% within Telephon_4b	38.8%	46.6%	14.6%	100.0%
		% within Telephon_6b	100.0%	100.0%	100.0%	100.0%
		% of Total	38.8%	46.6%	14.6%	100.0%

Chi-Square Tests			
	Value	df	(2-sided)
Pearson Chi-	13.528 ^a	6	.035
Likelihood	14.423	6	.025
Linear-by-	1.600	1	.206
N of Valid	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by	Phi	.362	.035
Nominal	Cramer's V	.256	.035
	Contingency	.341	.035
N of Valid Cases		103	

There is an association between telephone (freely exploits or to gain benefit) and telephone (effectiveness of use) in the stage of 'planning officer will refer to State Planning Department

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and NPPC' part of the planning permission process. This significant finding reflects the fact that when the telephone is exploited to a very high level it is effective, at about 100%.

The tables below show the correlations between freely exploits or to gain benefit and the effectiveness of use:

- KS techniques - Table 4.42, Table 4.43, Table 4.44, Table 4.45, Table 4.46, Table 4.47

Table 4.42: Cross tabulation (Communities of practice) between freely exploits or to gain benefit and effectiveness of use of KS techniques in the planning permission process – refer to planning authority and guideline of planning requirements

Communities of practice_4a * Communities of practice_6a Crosstabulation							
			COP_6a				Total
			1.very effective	2.effective	3.fairly effective	4.not effective at all	
COP_4a	1.very high level exploitation	Count	10	3	4	0	17
		% within COP_4a	58.8%	17.6%	23.5%	.0%	100.0%
		% within COP_6a	52.6%	6.8%	13.8%	.0%	16.5%
		% of Total	9.7%	2.9%	3.9%	.0%	16.5%
	2.high level of exploitation	Count	6	30	8	5	49
		% within COP_4a	12.2%	61.2%	16.3%	10.2%	100.0%
		% within COP_6a	31.6%	68.2%	27.6%	45.5%	47.6%
		% of Total	5.8%	29.1%	7.8%	4.9%	47.6%
	3.low level of exploitation	Count	3	9	17	5	34
		% within COP_4a	8.8%	26.5%	50.0%	14.7%	100.0%
		% within COP_6a	15.8%	20.5%	58.6%	45.5%	33.0%
		% of Total	2.9%	8.7%	16.5%	4.9%	33.0%
	4.no exploitation at all	Count	0	2	0	1	3
		% within COP_4a	.0%	66.7%	.0%	33.3%	100.0%
		% within COP_6a	.0%	4.5%	.0%	9.1%	2.9%
		% of Total	.0%	1.9%	.0%	1.0%	2.9%
Total	Count	19	44	29	11	103	
	% within COP_4a	18.4%	42.7%	28.2%	10.7%	100.0%	
	% within COP_6a	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	18.4%	42.7%	28.2%	10.7%	100.0%	

Chi-Square Tests			
	Value	df	(2-sided)
Pearson Chi-	40.195 ^a	9	.000
Likelihood	37.698	9	.000
Linear-by-	15.492	1	.000
N of Valid	103		

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Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.625	.000
	Cramer's V	.361	.000
	Contingency	.530	.000
N of Valid Cases		103	

There is an association between communities of practice (freely exploits or to gain benefit) and communities of practice (effectiveness of use) in the stage of 'refer to planning authority and guideline of planning requirements' part of the planning permission process. This significant finding reflects the fact that when communities of practice are exploited at a very high level it is effective, about at 76.4%.

Table 4.43: Cross tabulation (Brainstorming) between freely exploits or to gain benefit and effectiveness of use of KS techniques in the planning permission process – refer to planning authority and guideline of planning requirements

Brainstorming_4a * Brainstorming_6a Crosstabulation							
			Brainstorming_6a				Total
			1.very effective	2.effective	3.fairly effective	4.not effective at all	
Brainstorming_4a	1.very high level exploitation	Count	9	10	1	0	20
		% within Brainstorming_4a	45.0%	50.0%	5.0%	.0%	100.0%
		% within Brainstorming_6a	69.2%	18.9%	2.9%	.0%	19.4%
		% of Total	8.7%	9.7%	1.0%	.0%	19.4%
	2.high level of exploitation	Count	3	21	12	0	36
		% within Brainstorming_4a	8.3%	58.3%	33.3%	.0%	100.0%
		% within Brainstorming_6a	23.1%	39.6%	35.3%	.0%	35.0%
		% of Total	2.9%	20.4%	11.7%	.0%	35.0%
	3.low level of exploitation	Count	1	20	11	3	35
		% within Brainstorming_4a	2.9%	57.1%	31.4%	8.6%	100.0%
		% within Brainstorming_6a	7.7%	37.7%	32.4%	100.0%	34.0%
		% of Total	1.0%	19.4%	10.7%	2.9%	34.0%
	4.no exploitation at all	Count	0	2	10	0	12
		% within Brainstorming_4a	.0%	16.7%	83.3%	.0%	100.0%
		% within Brainstorming_6a	.0%	3.8%	29.4%	.0%	11.7%
		% of Total	.0%	1.9%	9.7%	.0%	11.7%
Total		Count	13	53	34	3	103
		% within Brainstorming_4a	12.6%	51.5%	33.0%	2.9%	100.0%
		% within Brainstorming_6a	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	12.6%	51.5%	33.0%	2.9%	100.0%

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Chi-Square Tests			
	Value	df	(2-sided)
Pearson Chi-	44.493 ^a	9	.000
Likelihood	42.176	9	.000
Linear-by-	25.401	1	.000
N of Valid	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.657	.000
	Cramer's V	.379	.000
	Contingency	.549	.000
N of Valid Cases		103	

There is an association between brainstorming (freely exploits or to gain benefit) and brainstorming (effectiveness of use) in the stage of 'refer to planning authority and guideline of planning requirements' part of the planning permission process. This significant finding reflects the fact that when brainstorming is exploited at a very high level it is effective, about at 95%.

Table 4.44: Cross tabulation (Communities of practice) between freely exploits or to gain benefit and effectiveness of use of KS techniques in the planning permission process – planning officer will refer to State Planning Department and NPPC

Communities of practice_4b * Communities of practice_6b Crosstabulation						
			COP_6b			Total
			1.very effective	2.effective	3.fairly effective	
COP_4b	1.very high level exploitation	Count	8	7	5	20
		% within COP_4b	40.0%	35.0%	25.0%	100.0%
		% within COP_6b	38.1%	13.5%	16.7%	19.4%
		% of Total	7.8%	6.8%	4.9%	19.4%
	2.high level of exploitation	Count	7	34	11	52
		% within COP_4b	13.5%	65.4%	21.2%	100.0%
		% within COP_6b	33.3%	65.4%	36.7%	50.5%
		% of Total	6.8%	33.0%	10.7%	50.5%
	3.low level of exploitation	Count	6	5	8	19
		% within COP_4b	31.6%	26.3%	42.1%	100.0%
		% within COP_6b	28.6%	9.6%	26.7%	18.4%
		% of Total	5.8%	4.9%	7.8%	18.4%
	4.no exploitation at all	Count	0	6	6	12
		% within COP_4b	.0%	50.0%	50.0%	100.0%
		% within COP_6b	.0%	11.5%	20.0%	11.7%
		% of Total	.0%	5.8%	5.8%	11.7%
Total		Count	21	52	30	103
		% within COP_4b	20.4%	50.5%	29.1%	100.0%
		% within COP_6b	100.0%	100.0%	100.0%	100.0%
		% of Total	20.4%	50.5%	29.1%	100.0%

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Chi-Square Tests			
	Value	df	(2-sided)
Pearson Chi-	18.191 ^a	6	.006
Likelihood	19.864	6	.003
Linear-by-	5.576	1	.018
N of Valid	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by	Phi	.420	.006
Nominal	Cramer's V	.297	.006
	Contingency	.387	.006
N of Valid Cases		103	

There is an association between communities of practice (freely exploits or to gain benefit) and communities of practice (effectiveness of use) in the stage of ‘planning officer will refer to State Planning Department and NPPC’ part of the planning permission process. This significant finding reflects the fact that when communities of practice are exploited at a very high level it is effective, about at 75%.

Table 4.45: Cross tabulation (Training) between freely exploits or to gain benefit and effectiveness of use of KS techniques in the planning permission process – planning officer will refer to State Planning Department and NPPC

Training_4b * Training_6b Crosstabulation							
			Training_6b				
			1.very effective	2.effective	3.fairly effective	4.not effective at all	Total
Training_4b	1.very high level exploitation	Count	13	5	1	1	20
		% within Training_4b	65.0%	25.0%	5.0%	5.0%	100.0%
		% within Training_6b	65.0%	9.4%	4.8%	11.1%	19.4%
		% of Total	12.6%	4.9%	1.0%	1.0%	19.4%
	2.high level of exploitation	Count	3	26	4	5	38
		% within Training_4b	7.9%	68.4%	10.5%	13.2%	100.0%
		% within Training_6b	15.0%	49.1%	19.0%	55.6%	36.9%
		% of Total	2.9%	25.2%	3.9%	4.9%	36.9%
	3.low level of exploitation	Count	2	18	12	2	34
		% within Training_4b	5.9%	52.9%	35.3%	5.9%	100.0%
		% within Training_6b	10.0%	34.0%	57.1%	22.2%	33.0%
		% of Total	1.9%	17.5%	11.7%	1.9%	33.0%
	4.no exploitation at all	Count	2	4	4	1	11
		% within Training_4b	18.2%	36.4%	36.4%	9.1%	100.0%
		% within Training_6b	10.0%	7.5%	19.0%	11.1%	10.7%
		% of Total	1.9%	3.9%	3.9%	1.0%	10.7%
Total	Count	20	53	21	9	103	
	% within Training_4b	19.4%	51.5%	20.4%	8.7%	100.0%	
	% within Training_6b	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	19.4%	51.5%	20.4%	8.7%	100.0%	

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Chi-Square Tests			
	Value	df	(2-sided)
Pearson Chi-	43.269 ^a	9	.000
Likelihood	37.992	9	.000
Linear-by-	10.449	1	.001
N of Valid	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by	Phi	.648	.000
Nominal	Cramer's V	.374	.000
	Contingency	.544	.000
N of Valid Cases		103	

There is an association between training (freely exploits or to gain benefit) and training (effectiveness of use) in the stage of 'planning officer will refer to State Planning Department and NPPC' part of the planning permission process. This significant finding reflects the fact that when training is exploited at a very high level it is effective, about 90%.

Table 4.46: Cross tabulation (Non-electronic work manual documents) between freely exploits or to gain benefit and effectiveness of use of KS techniques in the planning permission process – planning officer will refer to State Planning Department and NPPC

Non-electronic work manual document_4b * Non-electronic work manual document_6b Crosstabulation							
			Manual_6b				
			1.very effective	2.effective	3.fairly effective	4.not effective at all	Total
Manual_4b	1.very high level exploitation	Count	6	0	5	0	11
		% within Manual_4b	54.5%	.0%	45.5%	.0%	100.0%
		% within Manual_6b	27.3%	.0%	15.6%	.0%	10.7%
		% of Total	5.8%	.0%	4.9%	.0%	10.7%
	2.high level of exploitation	Count	6	22	14	1	43
		% within Manual_4b	14.0%	51.2%	32.6%	2.3%	100.0%
		% within Manual_6b	27.3%	50.0%	43.8%	20.0%	41.7%
		% of Total	5.8%	21.4%	13.6%	1.0%	41.7%
	3.low level of exploitation	Count	8	18	10	1	37
		% within Manual_4b	21.6%	48.6%	27.0%	2.7%	100.0%
		% within Manual_6b	36.4%	40.9%	31.3%	20.0%	35.9%
		% of Total	7.8%	17.5%	9.7%	1.0%	35.9%
	4.no exploitation at all	Count	2	4	3	3	12
		% within Manual_4b	16.7%	33.3%	25.0%	25.0%	100.0%
		% within Manual_6b	9.1%	9.1%	9.4%	60.0%	11.7%
		% of Total	1.9%	3.9%	2.9%	2.9%	11.7%
Total	Count	22	44	32	5	103	
	% within Manual_4b	21.4%	42.7%	31.1%	4.9%	100.0%	
	% within Manual_6b	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	21.4%	42.7%	31.1%	4.9%	100.0%	

KS tools and techniques in planning permission process

Chi-Square Tests			
	Value	df	(2-sided)
Pearson Chi-	25.456 ^a	9	.003
Likelihood	24.194	9	.004
Linear-by-	1.751	1	.186
N of Valid	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by	Phi	.497	.003
Nominal	Cramer's V	.287	.003
	Contingency	.445	.003
N of Valid Cases		103	

There is an association between non-electronic work manual documents (freely exploits or to gain benefit) and non-electronic work manual documents (effectiveness of use) in the stage of 'planning officer will refer to State Planning Department and NPPC' part of the planning permission process. This significant finding reflects the fact that when non-electronic work manual documents are exploited at very high level they are effective, about at 54.5%.

Table 4.47: Cross tabulation (Project review) between freely exploits or to gain benefit and effectiveness of use of KS techniques in the planning permission process – planning officer will refer to State Planning Department and NPPC

Project review_4b * Project review_6b Crosstabulation							
			Project_6b				Total
			1.very effective	2.effective	3.fairly effective	4.not effective at all	
Project_4b	2.high level of exploitation	Count	3	14	2	0	19
		% within Project_4b	15.8%	73.7%	10.5%	.0%	100.0%
		% within Project_6b	7.5%	31.1%	14.3%	.0%	18.4%
		% of Total	2.9%	13.6%	1.9%	.0%	18.4%
	3.low level of exploitation	Count	11	16	7	1	35
		% within Project_4b	31.4%	45.7%	20.0%	2.9%	100.0%
		% within Project_6b	27.5%	35.6%	50.0%	25.0%	34.0%
		% of Total	10.7%	15.5%	6.8%	1.0%	34.0%
	4.no exploitation at all	Count	26	15	5	3	49
		% within Project_4b	53.1%	30.6%	10.2%	6.1%	100.0%
		% within Project_6b	65.0%	33.3%	35.7%	75.0%	47.6%
		% of Total	25.2%	14.6%	4.9%	2.9%	47.6%
Total		Count	40	45	14	4	103
		% within Project_4b	38.8%	43.7%	13.6%	3.9%	100.0%
		% within Project_6b	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	38.8%	43.7%	13.6%	3.9%	100.0%

KS tools and techniques in planning permission process

Chi-Square Tests			
	Value	df	(2-sided)
Pearson Chi-	14.578 ^a	6	.024
Likelihood	15.225	6	.019
Linear-by-	1.974	1	.160
N of Valid	103		

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.376	.024
	Cramer's V	.266	.024
	Contingency	.352	.024
N of Valid Cases		103	

There is an association between project review (freely exploits or to gain benefit) and project review (effectiveness of use) in the stage of 'planning officer will refer to State Planning Department and NPPC' part of the planning permission process. This significant finding reflects the fact that when project reviews are exploited at very high level they are effective, about at 89.5%.

Taking the above into consideration, overall, the following can be recognised concerning the correlation between the exploitation of use (freely exploits or to gain benefit) and the effectiveness of use of KS technologies (tools) and techniques in the two stages of the planning permission process:

1. Telephone
2. Internet
3. Intranet
4. Communities of practice
5. Brainstorming
6. Training
7. Non-electronic work manual
8. Project review

There are a number of strengths of association between the exploitation and effectiveness of use of KS technologies and techniques. Most of the strengths of association range between 0.27 and 0.38, which represents a medium association.

4.8 Summary

Knowledge sharing technologies (tools) and techniques are important for any knowledge sharing initiative. Local authorities that have established or implemented KSI seem to have realised that if KS technologies (tools) and techniques are not carefully selected and managed, the likelihood of success is very limited. Therefore, this requires careful selection of KS technologies (tools) and techniques based on the organisation's needs and the functions that these can perform, especially in the context of the planning permission process. A thorough analysis has been conducted of the KS technologies (tools) and techniques presently used and of their level of frequency, effectiveness and exploitation in LAM in the planning permission process.

The research identified four KS technologies (tools) and techniques that are presently being frequently used for their degree of effectiveness and exploitation of use. These are:

i) Frequency of use

KS technologies (tools)

- Telephone
- Knowledge based expert system (planning approval system and geographical information system)
- Electronic office databases
- Internet

KS techniques

- Non-electronic work manual documents
- Project reviews
- Communities of practice
- Mentoring and coaching

ii) The degree of effectiveness;

KS technologies (tools)

- Telephone
- Internet

KS tools and techniques in planning permission process

- Electronic office databases and
- Knowledge based expert system (planning approval system and geographical information system)

KS techniques

- Project reviews
- Training
- Mentoring and coaching
- Non-electronic work manual documents

iii) The exploitation of used

KS technologies (tools)

- Knowledge based expert system (planning approval system and geographical information system)
- Electronic office databases
- Internet
- Intranet

KS techniques

- Communities of practice
- Training
- Brainstorming
- Mentoring and coaching

The discussion in this chapter has addressed the first, second and third objectives of this research. It could be concluded that the telephone is the most frequently used KS technology (tools), and non-electronic work manual documents are the most frequently used KS technique in the planning permission process. Although the most effective KS technology (tools) is the telephone and project review is the most effective KS technique, the most exploited use of KS technology (tools) is the knowledge based expert system and for the KS technique it is communities of practice.

Considering what has been discussed above, the following inferences and implications can be made:

1. Although local authorities have invested in the greater availability of more sophisticated technologies, such as planning approval system, geographical information systems and the Internet and intranet, the common perception on what is the most convenient and conventional technology is that it is the telephone. This is because the telephone is a faster means of communication and can be used to capture and distribute structured knowledge and enable people to share tacit knowledge. Furthermore, people tend to prefer familiarity over change and incorporating new technologies into the workplace takes time and effort. It is recommended that the MHLA and management of local authorities recognise the benefit of KS technologies (tools), and, more specifically, according to organisational requirements.
2. KS techniques are more convenient and less costly compared to technologies and are affordable to most organisations. This gives HRM the opportunity to clearly delineate the resources to be dedicated to tacit and explicit knowledge in the organisations, by identifying the key activities of KS, forming the KM team, performing job rotation across strategy groups and facilitating the dissemination of learning through workshops, in house training programmes and conferences.

CHAPTER 5. THE IMPACT OF ORGANISATIONAL STRUCTURE, CULTURE AND MOTIVATIONAL CONSTRUCTS IN THE EFFECTIVE SHARING OF KNOWLEDGE IN LOCAL AUTHORITIES IN MALAYSIA

5.1 Introduction

This chapter discusses the issues and findings concerning the impact of organisational structure, culture and motivational constructs in the effective sharing of knowledge in local authorities in Malaysia. Many factors have been established that respectively impact on the effective sharing of knowledge. It presents analyses of the data from both the survey and semi-structured interviews. The chapter reflects on the findings in order to fulfil the research objective.

To identify and appraise the impact of organisational structure, cultures and motivational constructs in the effective sharing of knowledge in local authorities of various sizes with respect to the planning permission process.

5.2 Organisational structure in local authorities in Malaysia

Every organisation made up of more than one person will need some form of organisational structure. An organisational chart shows the way in which the chain of command works within the organisation. The organisational structure defines the crucial aspects of any organisation. Every organisation has rules, procedures or standards about how they manage their organisations; in addition these direct the behaviour of their employees. Robins and Decenzo (2004) defined an organisation as a systematic arrangement of people, who are brought together to accomplish some specific purpose. Consequently, the organisation is designed to enhance a mutual relationship between top management and other employees to achieve the organisation goals. An organisation can be structured in many different ways, depending on their objectives. Mintzberg (1983) identified five classic structures that characterise the way organisations are organised.

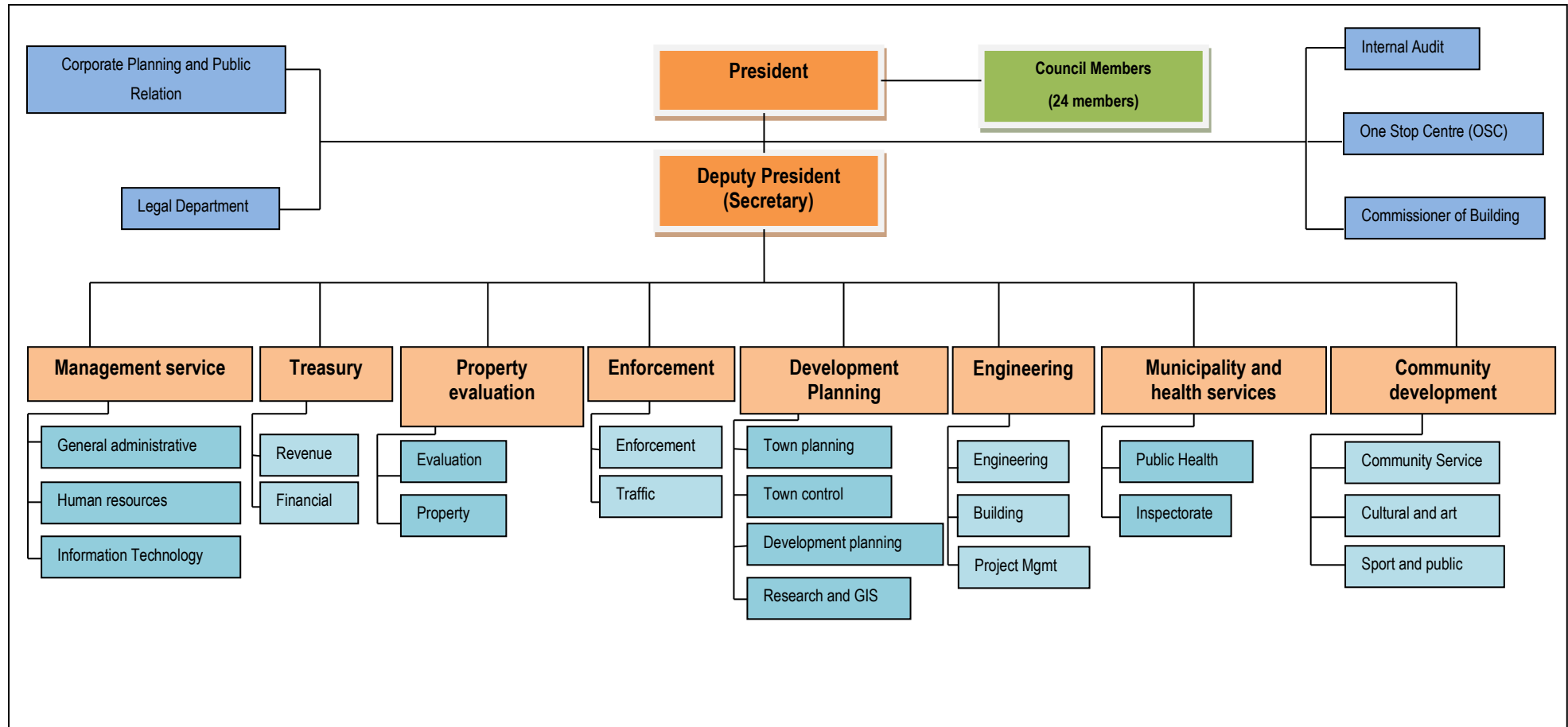
1. Simple structure
2. Machine bureaucracy
3. Professional bureaucracy
4. Divisionalised structure
5. Adhocracies

He also added that the structure of organisation refers to the division of different tasks and the achievement of coordination between them (Mintzberg, 1989). Mabey *et al.* (2001) described the structure of an organisation as a pattern of relationship between the roles and different parts in the organisation. The purpose of organisational structure serves to allocate work, responsibilities, and tasks in order to direct activities and achieve the organisational goal.

In the LAM setting, the structure has been determined by the Department of Public Service. The President or *Yang Dipertua Majlis*, as leader of the local authority, will be assisted by the vice president (secretary) of the council/authority in managing all the business of the local authority. In addition to this top management, there are several departments including:

1. Management service department
2. Treasury department
3. Property evaluation and management department
4. Enforcement department
5. Development department
6. Engineering department
7. Municipality and health service department
8. Community development department

Each of these departments is led by a head of department. In this respect, it enables managers to plan, organise, control and monitor the activities of LAM. The structure of the organisation for local authorities is diverse according to the nature and type of local authority. Drucker (1999) recognised the characteristic of organisational structure as a critical element that influences the productivity and innovation of an organisation and provides the relationship of the tasks that predetermine the way people work (Hunter, 2002). An organisational chart for a municipal council (authority) is shown in Figure 5.1.



(Adapted from Ampang Jaya Municipal Council (2011))

Figure 5-1: Organisational chart for Municipal authority

5.3 Relationship between organisational structure and issues in knowledge sharing

The nature of the LAM organisational structure and the way it is organised internally is crucial if employees are expected to openly share their knowledge. The major purpose of sharing knowledge is to enable communication and knowledge reuse between different employees in the same share domain. However, for individuals in a highly competitive environment, knowledge sharing means that an individual's knowledge is disseminated to others who might be competitors either now or in the future.

Employees and employer relationships are part of a business's internal relationship management. The planning permission process, involves planning and One-Stop Centre departments, and various officers. It is difficult for them to communicate and share because of the different levels of ranking in the organisation. However, some of the senior officers and planning members are reluctant to learn new knowledge, especially in the context of development control, and new recruits take too much time to develop working expertise.

The impact of organisational structure on the effective sharing of knowledge is examined in detail in section 5.4

5.4 The impact of organisational structure in the effective sharing of knowledge

All organisations require some form of organisational structure to implement and manage their strategy, especially in the context of knowledge sharing. The structure of LAM addresses the organising element of the organisation including complexity, centralisation, formalisation and stratification. Each element can impact on the effective sharing of knowledge. The organisational structure variables that impact on the effective sharing of knowledge in LAM are shown in figure 5.2.

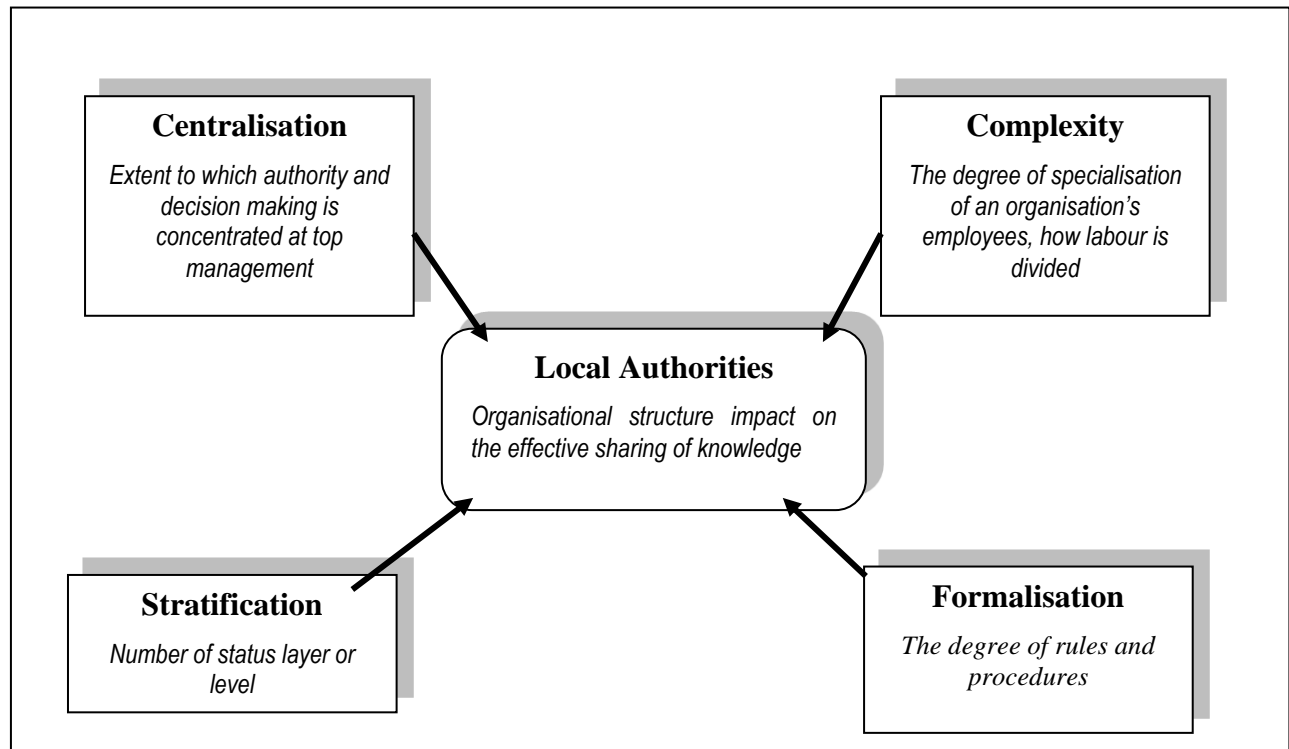


Figure 5-2: Organisational structure variables that impact in the effective sharing of knowledge in LAM

5.4.1 Complexity

The meaning of complexity –dictionary definitions provide two basic of dimensions of complexity relevant to projects, a) consisting of many varied interrelated parts and b) complicated, involved and intricate (Baccarini, 1996). In this research, complexity is referred to an organisational complexity. According to Baccarini (1996) organisational complexity is defined as consisting of many varied interrelated parts' and can be operationalised in terms of differentiation and interdependency. Organisational complexity is divided into two (Baccarini, 1996) – organisational complexity by differentiation and organisational complexity by interdependency.

Organisational complexity – by differentiation

This organisational structure is contained of differentiated parts so that the greater the differentiation the more complex the organisation. These differentiations are vertical differentiation and horizontal differentiation.

5.4.1.1 Vertical Differentiation

According to Baccarini (1996) this refers to the depth of organisational hierarchical structure. This complexity involves the division of the decision-making tasks and supervisory responsibilities (Tolbert and Hall, 2009). This division normally reports to the head of staff to formulate strategy and manage the organisation.

5.4.1.2 Horizontal Differentiation

According to Baccarini (1996) this complexity can be divided in two:

- a) Organisational units – numbers of formal organisational units.
- b) Task structure. – refers to division of tasks and can be achieved in two basic ways.
 - i) Division of labour
 - ii) Personalised specialisation

- i) Division of labour

Tasks are structured so that non-specialists can perform them, thereby lessening the skill requirements in a single job position, e.g. assembly-line production.

- ii) Personal specialisation

This complexity refers to work specialists such as professionals, i.e. persons performing a wide range of activities, thereby increasing the task complexity of a single job position. Therefore, organizational complexity by personal specialization is measured in terms of the number of different occupational specializations utilized to accomplish the work (Dewar and Hage (1978) in Baccarini, 1996). Strang and Baron (1990) asserted that the more job titles in the organisation the higher the level of complexity.

Organisational complexity –by interdependency

According to Gidado (1993) in Baccarini (1996) stated that organisational complexity is the degree of operational interdependencies and interaction between the project organisational elements. In addition Thompson (1967) in Baccarini (1996) claimed that the organisational

complexity is the level of three types of interdependencies between organisational units which are pooled, sequential and reciprocal. He added that reciprocal interdependencies is considered the highest level of complexity.

5.4.1.3 Spatial Complexity

Another complexity is also referred to as geographical dispersion, involves the extent to which an organisation has different sites in different locations (Tolbert and Hall, 2009).

LAM's have a variety of posts in the organisation, such as President, Secretary, and Heads of Department, technical assistant, and technician. Each department or head of department has their authority or specialisation. According to Levinthal and March (1981), it is the firm's task to create benefits by job specialisation and combine groups of people with similar tasks to obtain optimal local learning within a group. Although complexity often leads to a greater delegation of decision-making authority, top management members can ensure some control over nominally delegated decisions by specifying the criteria to be used. For example, the Head of Department of the Planning Department has the authority to make decisions regarding development control, planning and as directed under the Town and Country Planning Act 1976 (Act 172).

5.4.2 Formalisation

The concept of formalisation refers to the extent to which tasks and procedures for carrying out work and directing the behaviour of its members in the organisation are determined. Bowditch and Buono (2005) suggested that this dimension of organisation reflects the amount of discretion that is built into particular roles and positions. According to Ouchi (1977), this formalisation will influence the effectiveness of control, adaptability, and employees' motivation (Aiken and Hage, 1971). In the setting of development control, especially in the planning permission process, there are various procedures, tasks and laws that need to be complied with, including:

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1. National Land Code (NLC) 1965 (NLC, 2008) (Law of Malaysia,1965)
2. The Town and Country Planning Act, 1976 (Act 172) (Law of Malaysia, 1976).
3. The Government Act 1976 (Act 171) (Law of Malaysia,1976b)
4. Uniform Building by Law 1984 (UBBL) (Law of Malaysia,1984)
5. The Street, Drainage and Building Act 1974 (Act 133) (Law of Malaysia,1974)
6. The Environmental Quality Act 1984 ((Law of Malaysia,1984)

As well as this legislation, other procedures include:

1. Job manual procedure
2. Current procedure and policies (Development control)
3. ISO documentation

Most of the legislation, procedures, routines and policies help maintain control over delegated decisions or because formalisation is related to the quality of personnel the organisation employs. However, in certain cases, the planning permission process requires the status of documents to remain confidential, which leads to problems in acquiring information and creating knowledge.

5.4.3 Centralisation

Centralisation focuses on the locus of decision-making authority within the organisation. Typically, in a centralised organisation, the decisions are concentrated at one or a few points at the top of the organisational hierarchy. In contrast, decentralisation is more concerned with the issue of satisfaction and linked to greater involvement in communication and decision-making. Hage and Akin (1967, 1969) found participation in decision-making to be one the best predictors of decentralisation.

5.4.4 Stratification

Stratification refers to the number of layers or levels of the organisational hierarchy. According to Egbu (2000), organisations that have a high level of stratification inhibit innovation, because they lead to too much preoccupation with status and insufficient freedom for creative thinking. In LAM, the layers or levels of an organisation have an impact on making decisions in the planning permission process and the nature of the organisational structure and bureaucracy restrict the communication flow between divisions or units making it difficult to share knowledge.

5.5 Analysis of qualitative data in respect of the impact of organisational structure on the effective sharing of knowledge

Organisational structure is very important for every organisation. Many writers have revealed the relationship between organisational structure and organisational size, strategy, technology, environment and culture. Burns and Stalker (1961) summarised that if an organisation wants to achieve maximum performance then the organisational structure must fit with or match the rate of change in its environment. Within the LAM, organisational structure, as it is relevant to individual achievement, refers to the formal arrangements of personnel in the workplace or departments, divisions and job ladders that effectively pattern career opportunity. Handy (1993) has discussed the importance of culture in relation to organisational design and organisational structure. In addition, this is agreed by Mabey *et al.* (2001) in that organisational design and organisational structure are closely entwined.

Table 5.1: Results from interviewees regarding the impact of structure on effective KS in planning permission

Local Authorities	Approach in place	Frequency
City authority	<ul style="list-style-type: none"> • Delegate the tasks between small groups and lead by planning officers (zoning) – opportunities for them to share and be directly involved in their territory. • Follow the rules and procedure 	3
Municipal authority	<ul style="list-style-type: none"> • Give opportunities to subordinates to express their ideas or share any outcome in daily tasks – show their commitment and responsibility with their work • Follow the rules and procedure 	9
District authority	<ul style="list-style-type: none"> • Most of the works done by top management decision making • Follow the rules and procedure 	8
Total		20

The findings from the interviewees concerning the impact of structure on effective KS in the planning permission process (Table 5.1) indicate that twenty interviewees identified that tasks or work, in both local authorities are:

- Work or task divided into group or sub-groups
- Give opportunities to the staff to express their ideas and share with others in order to speed up the process of the planning permission process
- Follow the rules and procedure
- Top management is important

Group activities, such as discussions and informal face-to-face meetings, will show a particular behaviour or set of behaviours for leaders and the members, which enables communication, influence, decision-making and similar processes to be performed. Collective sharing of knowledge exists when the efforts of employees with complementary skill are combined and through this process knowledge is shared in the organisation.

In the semi-structured interviews, respondents were asked to specify issues regarding organisational structure (Refer appendix 4).

The interviewee of HDPD 1 said that, “....most of our job...must follow the rules and procedures that are given by MHLA and Local authority... and certain issues restrict the flow of information....”

The interviewee of HDPC 1 said that, “.....*concentration of authority and decision making normally focus on strategy level, for our department there is decentralised or delegated authority. Example ‘any decision/idea or result by department is forwarded to the OSC committee meeting or local authority meeting for evaluating and endorsement. In other words top management will consult before making a decision’*”

Although the structure of local authorities are complex and formalised (Refer section 5.4.2) where explicit rules and procedures are likely to impede the effectiveness of sharing of knowledge, through the complexity or delegation of decision-making, the head of department and planning officers can express their opinions and views towards improving the effectiveness in carrying out the work. These are parallel with the Malaysian government through ‘*Plan Integriti Nasional*’ in which it prescribes five main targets – to improve efficiency, overcome bureaucratic red tape, transparency, improve service delivery and accountability (Ahmad Badawi, 2004b).

However, under the increasingly dynamic and competitive pressure, knowledge workers who have wider skills, expertise and work responsibilities would need greater autonomy and self-regulation. Janz *et al.* (1997) noted that if individuals have freedom, independence to determine what action is required and how best to execute them; they would accept the resulting decision because they have the opportunity to provide input and ideas during the decision-making process. Furthermore, it is believed that employees are capable of self-organising social interaction to solve new or existing problems if they are allowed to do so (Janz and Prasarnphanich (2003).

5.6 Analysis of quantitative data concerning the impact of organisational structure on the effective sharing of knowledge

In the questionnaire survey, the subject of the impact of organisational structure on effective sharing of knowledge was raised, i.e., What is the impact of rules and procedures, top management decision making and occupational specialisation and task differentiation in the work that you do? The following analysis reflects the perceptions of the individual on the planning permission process.

Tables 5.2 and 5.3 show the three main questions associated with the impact of organisational structure on the effective sharing of knowledge on the following two stages of the planning permission process.

Table 5.2: Summary of the impact of organisational structure on the effective sharing of knowledge-Mean Value Comparison according to the size – Refer to planning authority and guideline of planning requirements

a) Refer to planning authority and guideline of planning requirement								
Organisational Structure	City	Rank	Municipal	Rank	District	Rank	Overall	Rank
Impact of occupational specialisation and task differentiation	1.9286	1	1.6275	1	2.0417	3	1.8058	1
Impact of top management decision making	1.9643	2	2.1373	2	1.7083	1	1.9903	2
Impact of rules and procedure	1.9643	3	2.1569	3	2.0000	2	2.0680	3
Meaning of scale: 1 (A Very Positive Impact), 2 (Positive Impact), 3 (A Fairly Positive Impact), 4 (No Positive Impact At All)								

Table 5.3: Summary of the impact of organisational structure on the effective sharing of knowledge-Mean Value Comparison according to the size – Planning officer will refer to State Planning Dept. and NPPC

b) Planning officer will refer to: State planning dept. and NPPC								
Organisational Structure	City	Rank	Municipal	Rank	District	Rank	Overall	Rank
Impact of occupational specialisation and task differentiation	1.9286	1	1.6275	1	1.9709	3	1.7864	1
Impact of top management decision making	1.9643	2	2.1373	2	1.6250	1	1.9709	2
Impact of rules and procedure	1.9643	3	2.1569	3	1.9167	2	2.0485	3
Meaning of scale: 1 (A Very Positive Impact), 2 (Positive Impact), 3 (A Fairly Positive Impact), 4 (No Positive Impact At All)								

From the data in Tables 5.2 and 5.3 it is evident that at the aggregate level the impact of occupational specialisation and task differentiation is the main factor for the impact on the effective sharing of knowledge in LAM. This is followed by the impact of top management

decision-making and the impact of rules of procedure. The inference that can be drawn from the above tables (Tables 5.2 and 5.3) is that complexity is very effective for knowledge sharing in the LAM, followed by centralisation and formalisation. This is because in LAM, the complexity leads to greater delegation of decision-making authority between the head of department and planning officers, so that it can improve knowledge sharing among them. This contrasts with their research done by Olomolaiye (2007), who found that occupational specialisation and task differentiation was not very effective in respect of the sharing of knowledge within organisations. The implications from this result are that even though the complexity has shown that there is effectiveness in the sharing of knowledge; LAM has to increase the opportunity of sharing of knowledge between them. As mentioned before, the Malaysian government implemented the *Plan Integrity Nasional* to improve the bureaucratic red tape (Ahmad Badawi, 2004b). It is recommended that LAM have to reduce the level of formalisation in local authorities. Furthermore, LAM should endeavour to improve the planning permission process to achieve their goals with parallel effort to equip public service personnel with the necessary knowledge, attitudes, skills and capacity building.

At the disaggregate level for the city and municipal authorities, the impact of occupational specialisation and task differentiation is the main factor for the impact on the effective sharing of knowledge in LAM. This is followed by the impact of top management decision-making and the impact of rules of procedure. However, district local authorities noted that the 'impact of top management decision making' is the main factor impacting on the effective sharing of knowledge, followed by the 'impact of rules and procedure' and 'impact of occupational specialisation and task differentiation'. The inference that can be drawn from the above tables (Tables 5.2 and 5.3) is that when the size of group increases, the impact of effective knowledge sharing decreases. This is agreed by Serenko *et al.* (2007), who stated that when the size of organisation increases, knowledge flows will decrease and knowledge sharing is obstructed. In the setting of LAM, there are two possible reasons for this, especially in city and municipal authorities, which have a large number of technical staff compared to district authorities. The first is in the context of the organisational structure, a hierarchical organisational structure inhibits or slows down most sharing practices and in certain cases the physical work environment and layout of work areas restricts the practice of sharing. Second, all planning officers have to apply their professional knowledge to their work, and there is a general lack of time to share knowledge or identify colleagues in need of

specific knowledge. Additionally, in big organisations there is a tendency for individuals to use knowledge as their source of power for personal advantage rather than as organisational resources. However in district local authorities, the effective sharing of knowledge is made up by the top management. This is because the structure of the planning department and OSC are small, and they do not have a qualified planning officer, hence, all the decisions have to be referred to the President or through the OSC meeting or district authority meeting, or they have to be referred to the State Planning Department. The implication from this result is that size of group has an impact on the effective sharing of knowledge. When the size of group increases then the effective sharing of knowledge decreases. It is recommended that top management has to be involved effectively in knowledge sharing initiatives within LAM to make sure that LAM, although they are located in every state in Malaysia, this is the obstacle that impedes effective knowledge sharing being done in LAM. This is parallel with Liebowitz (2000), who stated that without top management commitment and involvement, KM cannot be carried out successfully.

The following can be recognised as the factors that impact on the effective sharing of knowledge:

- Occupational specialisation and task differentiation
- Top management decision making
- Rules and procedure

This suggests that the impact of organisational structure does not differ according to the various sizes with respect to the planning permission process. This was further examined using the Kruskal-Wallis test. The results of the Kruskal-Wallis test are given in Tables 5.4 and 5.5. The test of null hypothesis was used to investigate this.

Null hypothesis H_0 – The organisational structure that impacts on the effective sharing of knowledge in local authorities does not differ according to the various sizes with respect to the planning permission process.

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Table 5.4: The factors for organisational structure that impact on the effective sharing of knowledge versus the type of local authority – mean rank comparison – Refer to planning authority and guideline of planning requirements

a) Refer to planning authority and guideline of planning requirement			
Ranks			
	Council	N	Mean Rank
Impact of rules and procedure	1.City Council	28	48.71
	2.Municipal Council	51	54.71
	3.District Council	24	50.08
	Total	103	
Impact of top management decision making	1.City Council	28	52.34
	2.Municipal Council	51	56.21
	3.District Council	24	42.67
	Total	103	
Impact of occupational specialisation and task differentiation	1.City Council	28	56.14
	2.Municipal Council	51	45.14
	3.District Council	24	61.75
	Total	103	

Table 5.5: Kruskal-Wallis Test Statistics for organisational structure in effective sharing of knowledge – Refer to planning authority and guideline of planning requirements

Test Statistics ^{a,b}			
	Impact of rules and procedure	Impact of top management decision making	Impact of occupational specialisation and task differentiation
Chi-Square	1.053	4.137	6.729
df	2	2	2
Asymp. Sig.	.591	.126	.035
* result (Bold) are statistically significant at $p < 0.05$			

Effective knowledge sharing

Table 5.6: The factors for organisational structure that impact on the effective sharing of knowledge versus the type of local authority – mean rank comparison – Planning officer will refer to State Planning Dept. and NPPC

b) Planning officer will refer to: State planning dept. and NPPC			
Ranks			
	Council	N	Mean Rank
Impact of rules and procedure	1.City Council	28	49.50
	2.Municipal Council	51	55.41
	3.District Council	24	47.67
	Total	103	
Impact of top management decision making	1.City Council	28	53.13
	2.Municipal Council	51	56.95
	3.District Council	24	40.17
	Total	103	
Impact of occupational specialisation and task differentiation	1.City Council	28	56.79
	2.Municipal Council	51	45.83
	3.District Council	24	59.52
	Total	103	

Table 5.7: Kruskal-Wallis Test Statistics for organisational structure on effective sharing of knowledge – Planning officer will refer to State Planning Dept. and NPPC

Test Statistics ^{a,b}			
	Impact of rules and procedure	Impact of top management decision making	Impact of occupational specialisation and task differentiation
Chi-Square	1.652	6.313	5.155
df	2	2	2
Asymp. Sig.	.438	.043	.076

* result (Bold) are statistically significant at $p < 0.05$

As per 3.9.1.4, the Kruskal-Wallis test measures how much the group ranks differ from the average ranks of all groups. Thus, at the 5% level of significance, the p value is statistically insignificant in most instances, the results suggest that the level of impact of organisational structure on effective sharing of knowledge for ‘refer to planning authority and guideline of planning requirements’ and ‘Planning officer will refer to State Planning Dept. and NPPC’ parts of the planning permission process do not differ according to the various sizes with respect to the planning permission process. Therefore, the null hypothesis of the study is accepted.

The inference that can be drawn from this result (Table 5.5 and 5.7) is that it contradicts the result in Table 5.2 and 5.3. The impact of organisational structure in effective sharing of knowledge for 'refer to planning authority and guideline of planning requirements' and 'Planning officer will refer to State Planning Dept. and NPPC' parts of the planning permission process differ according to the various sizes with respect to the planning permission process. It can be argued that effective knowledge sharing in a department or different groups depends upon the cooperation between the team. In addition, this is agreed by Er-ming *et al.* (2006), who mentioned that the organisational structure has an impact on the effectiveness of knowledge sharing. The implication from this result is that LAM have to apply a flexible organisational structure to influence the staff of LAM's knowledge sharing behaviour. It is recommended that LAM have to pay attention to the organisational structure for encouraging employees' knowledge sharing by creating a work environment that encourages interaction among employees. In addition, open communication between department and senior officers should be emphasised to facilitate knowledge sharing.

5.7 The impact of culture in the effective sharing of knowledge

In addition to organisational structure, culture refers to a collective programming of the mind, which distinguishes the members of one group from another (Hofstede, 1980). He added that culture determines the thinking, feeling and behaviour of the individual (Hofstede, 1991). Conversely, Schein (1992) defined culture as a pattern of basic assumptions about how the group copes with the outside world and about how members should act within the group. Hofstede (1991) stated that culture consists of five dimensions:

1. Power distance – how a society/organisation handles inequalities
2. Individualism/collectivism – behaviour towards the group
3. Masculinity/femininity – behaviour according to gender
4. Uncertainty avoidance – the need for structure
5. Long-term orientation – stressing a virtuous living in this world, with thrift and persistence as key virtues.

In LAM, organisational culture is important because it can significantly influence the attitude and behaviour of the individuals and value of knowledge sharing in the organisation. The complexity of culture in the organisation allows mapping the cultural emphasis of knowledge sharing practices. Indeed, the importance of creating a culture that values creativity, continuous improvement and the sharing of ideas is necessary for knowledge management initiatives to succeed (Davenport *et al.*, 1998; Nevis *et al.*, 1995; DeLong and Fahey 2000; Gupta and Govindarajan 2000). Individuals who join an organisation bring their personalities and culture as their behaviour into the organisation. Jaw & Liu (2003) commented that an individual in the organisation takes a set of attributes and experiences that describe the overall pattern of organisational activities. They also added that social interaction between individuals would influence the process of knowledge sharing. Dialogue between individuals or group members is the basis of the process of sharing, solving problems or new knowledge (De Long and Fahey, 2000), and, therefore, can be viewed as having the potential for creating knowledge. Nonaka (1994) has noted that knowledge is created and managed by individuals within organisations. Thus, interaction between them should be encouraged so that the relationships, contacts and perspectives are shared. To achieve this, all members in the organisation need to be clear about the organisational vision and goals. Furthermore, knowledge sharing involves changing organisational culture (Stoddart, 2007). The development of organisational culture in LAM should involve adjusting the values and changing the attitudes of individuals, especially in the planning permission process. The process of changing organisational culture is a long-term process and needs effort, support and time from the management level in LAM. It includes the development of a knowledge friendly culture (Davenport *et al.*, 1998). In the short-term the managers (Heads of Planning and OSC) need to focus on the way to promote knowledge sharing behaviour, as behaviour is the most superficial aspect of culture (Smith and McKeen, 2003)

Multiracial employees in the LAM require attention for the effective sharing of knowledge in the organisation. Different ethnic cultures emphasize distinct values and are associated with diverse languages. Hence, a hierarchical culture, which is characterised more by bureaucracy and where value is placed on formalisation and centralisation of power, is known to be the culture in local authorities. Hofstede revealed that Malaysia had the highest power distance score of all the countries measured, with a Power Distance Index (PDI) of 104. This means that leaders and subordinates consider each other as essentially unequal. Its organisations centralise power as much as possible and subordinates are expected to be instructed in what

to do. There are a lot of supervisory personnel, which is typical of complex hierarchies. Unfortunately, the majority of cultural research undertaken in Malaysia failed to distinguish between the different ethnic groups within the country (Goodwin & Goodwin, 1999). They added that Hofstede's measurements of cultural dimensions were based on Malaysia as a whole, therefore, making it difficult to make predictions about the different directions in which the country may be headed. Hence, it may be dangerous to draw conclusions based on national culture, without also considering ethnic differences within a nation. Singh *et al.* (2008) suggested in their research that any changes brought about by knowledge management would have to be tailored to accommodate the Malaysian work culture.

The government of Malaysia under the Public Service Department (2009) has provided various policies related to organisational culture, especially in the public service:

1. Formulation of the General Orders (Conduct and Discipline) Chapter 'D' (1980)
2. Value and Ethics in Public service (INTAN, 1991)
3. Operations Integrity Management System Administration Strengthening the Government of Malaysia (2001)

Hence, the existence of a strong cooperative, trusting and collaborative culture is an important prerequisite for the sharing of knowledge between employees in the LAM. Developing a high level of trust is a precondition for developing a collaborative culture. Von Krogh (1998) suggested that trust and openness in organisational culture promotes employees' active knowledge management behaviour. Ardichvili *et al.* (2003) divided trust into two:

- Trust in the other or personal knowledge-based trust
- Trust in the organisation or institution-based trust as a whole.

In order to develop trust in organisations, management have to form an organisation's social interaction culture. This provides an opportunity for individuals to interact and be understanding of each other, and, hence, develop a degree of trust among team members. According to Cohen and Prusak (2001), a high level of employees' trust can lead to better knowledge sharing, shared goals, and lower transaction costs. To achieve the best possible gain in developing trust, a social environment can be created within an organisation in the LAM.

5.8 Analysis of qualitative data concerning the impact of culture on the effective sharing of knowledge

The findings from the semi-structured interviews revealed some of the factors that impact on culture in respect of effective sharing. The factors have been identified in the table below:

Table 5.8: Results from interviewees regarding impact of culture on effective KS in planning permission

Code	Factor	Frequency	Percentage	Rank
HDPC1, HDOC1, POC1, HDPM1, HDPM2, HDOM1, HDOM2, HDPM3 HDPM4, HDPM5, HDOM3, POM1, HDPD1, HDOD1, HDOD2 HDOD3, HDOD4, HDOD5, HDOD6, HDOD7	Team work cooperation	20	100%	1
HDPC1, HDOC1, POC1, HDPM1, HDPM2, HDOM1, HDOM2, HDPM3 HDPM4, HDPM5, HDOM3, POM1, HDPD1, HDOD1, HDOD2 HDOD3, HDOD4, HDOD5, HDOD6, HDOD7	Authority flow based on power distance – department level	17	85%	2
HDPC1, HDOC1, POC1, HDPM1, HDPM2, HDOM1, HDOM2, HDPM3 HDPM4, HDPM5, HDOM3, POM1, HDPD1, HDOD1, HDOD2 HDOD3	Distribution work and roles between genders – equal	16	80%	3
HDPC1, HDOC1, POC1, HDPM1, HDPM2, HDOM1, HDOM2, HDPM3 HDPM4, HDPM5, HDOM3, POM1, HDPD1, HDOD1, HDOD2	The extent to which people feel threatened by uncertainty and ambiguity and try to avoid these situations – low	15	75%	4
HDPC1, HDOC1, POC1, HDPM1, HDPM2, HDOM1, HDOM2, HDPM3 HDPM4, HDPM5, HDOM3, POM1, HDPD1, HDOD1, HDOD2	Long-term orientation	15	75%	5

The findings from the interviews indicate that one hundred per cent (100%) or twenty 20 respondents believe that teamwork cooperation has an impact on the effective sharing of knowledge in their organisation. It seems that most of the team members in the planning and OSC department work as a group and collaborate with each other to achieve their tasks. This is parallel with government policies to ensure that all government agencies are in line with the government's overall vision.

This shows that most of the members in the planning and OSC department work in a team or group. As noted by one of the interviewees below.

The interviewee of HDPC 1 said that, *'most of the senior staff are on the verge of retirement and are willing to share their knowledge with junior staff. They have realised that by sharing their knowledge, the benefit is for the organisation'....*

Culture, such as ‘comfort zone’, workload, and not enough time; and knowledge as power and hesitant to share knowledge are other factors that hinder the effectiveness of sharing knowledge in the planning permission process. Moreover, blame culture, i.e., junior staff and less experienced employees feel uncertainty because they cannot judge if their working result represents valuable knowledge for others and also feel fear even if the mistake was made for the best intentions of the organisation.

According to Olomolaiye (2007), it is important for the employees to understand that there is a ‘no blame’ culture within the organisation; this will encourage employees to share their knowledge. In addition, the suggestion made by McAdam and Reid (2000) that the government needs to encourage a participative culture for all, including formal and informal communications. Therefore, the knowledge exchange among employees should help in the process of maximising their ability to meet customer demand as well as improve the service delivery for the citizen. According to Shin *et al.* (2007), with a strong culture context that supports friendship and polite behaviour, the more likely it is for members of the group to willingly share resources.

Second, Eighty-five per cent (85%) of the interviewees believe that authority based on power distance exists in their organisation. Even though delegations of decision-making exist at the managerial level in the local authorities, in the context of the planning permission process, the flow of authority from the Head of Planning Department is common at present. Most of the final decisions in the Planning Department are made by the Head of Department. This is because he/she is responsible for any decision made and the need for control over the information flow at the department level before the results can be forwarded to the OSC meeting and local authority meeting. Similarly, Hofstede (2001) suggested that in high power distance cultures, information flows are usually constrained by hierarchy, which might lead to an exclusion of lower-level employees from access to certain types of information. Such practices could create obstacles for effective sharing of knowledge within the planning permission process. According to Ipe (2003), power and status determine people’s motivation to share and the direction of knowledge flow.

The interviewee of HDPM 1 said that, “....*I need to check all feedback and opinions given by my staff before any decision can be made....*”

Effective knowledge sharing

On the perspective of distribution work between genders, eighty per cent (80%) of the interviewees believe that behaviour according to gender is equal in MLA. One of the interviewees noted,

The interviewee of HDPM 1 said that, *“We are not looking at gender; we are looking at how they perform their task.”*

For uncertainty avoidance and long-term orientation, seventy five per cent (75%) believe they have a low impact on the effective sharing of knowledge in the planning permission process. As mentioned earlier, most of the work and tasks for the planning permission process refer to rules, procedure and guidelines endorsed by the MHLG and local authorities themselves (Refer Table 2.2).

The interviewee of HDPC 1 said that, *“In our organisation we have rules, procedures and policies to follow even when the employee thinks it is in the organisation’s best interest.”*

For orientation, most of the respondents believe they are most likely to be more long-term orientation in which there is respect for tradition, fulfilling social obligations, persistence and perseverance, thriftiness and a strong sense of shame.

The interviewee of HDOM 1 said that, *“in my view the level of commitment amongst non-technical staff is good. They are very helpful and responsible in their work.”*

When employees perceive a higher degree of cooperative atmosphere inside the organisation, they will be more likely to build up the interactive relationships with other members.

5.9 Analysis of quantitative data concerning the impact of culture on the effective sharing of knowledge

In the questionnaire survey, questions were constructed according to Hofstede’s dimensions to identify the respondents’ perceptions concerning the impact of culture on the effective sharing of knowledge in local authorities of various sizes. The following analysis reflects the individual perception of those who are directly involved in the planning permission process (refer section 2.3.6).

Effective knowledge sharing

Table 5.9: Summary of the impact of culture on effective sharing of knowledge – Mean Value Comparison according to the size – Refer to planning authority and guideline of planning requirements

a) Refer to planning authority and guideline of planning requirement								
	Local Authorities							
	City	Rank	Municipal	Rank	District	Rank	Overall	Rank
Attitude of leaders to open discussion with employees	1.7500	2	1.6863	2	1.5833	1	1.6796	1
Teamwork among the workers	1.6786	1	1.8627	3	1.6667	2	1.7670	2
Relationship between co-worker	1.9286	3	1.6275	1	2.0417	5	1.8058	3
Authority flow based on power distance	2.1429	5	2.0784	4	1.9583	3	2.0680	4
Impact of rules and procedure	1.9643	4	2.1569	5	2.0000	4	2.0680	5
Meaning of scale: 1 (A Very Positive Impact), 2 (Positive Impact), 3 (A Fairly Positive Impact), 4 (No Positive Impact At All)								

Table 5.10: Summary of the impact of culture on effective sharing of knowledge – Mean Value Comparison according to the size – Planning officer will refer to State Planning Dept. and NPPC

b) Planning officer will refer to: State planning dept. and NPPC								
	Local Authorities							
	City	Rank	Municipal	Rank	District	Rank	Overall	Rank
Attitude of leaders to open discussion with employees	1.7500	2	1.6471	2	1.5833	1	1.6602	1
Teamwork among the workers	1.6429	1	1.8627	3	1.6667	2	1.7573	2
Relationship between co-worker	1.9286	3	1.6275	1	1.9583	5	1.7864	3
Impact of rules and procedure	1.9643	4	2.1569	5	1.9167	4	2.0485	4
Authority flow based on power distance	2.1429	5	2.0784	4	1.9167	3	2.0583	5
Meaning of scale: 1 (A Very Positive Impact), 2 (Positive Impact), 3 (A Fairly Positive Impact), 4 (No Positive Impact At All)								

From the data in Tables 5.9 and 5.10 it is evident that at the aggregate level the impact of attitude of leaders to open discussion with employees is the main factor for the impact of culture on effective sharing of knowledge. This is followed by teamwork among the workers, relationship between co-workers, authority flow based on power distance and impact of rules and procedure. The inference that can be drawn from Tables 5.9 and 5.10 is that the factor of leadership style is very important in LAM. This is agreed by Mosadeghrad (2003), who stated that leadership styles can be viewed as a series of managerial attitudes, behaviours, characteristics and skills based on individual and organizational values, leadership interests and reliability of employees in different situations. The implication of this result is that although this leadership style is possibly ideal for LAM, in particular situations this leadership style is irrelevant. Different styles are needed for different situations and each leader needs to know when to exhibit a particular approach. It is recommended that LAM have to provide good leadership style that is relevant to the Malaysian culture. This is because no one leadership style is ideal for every situation, since a leader may have knowledge and skills to act effectively in one situation but may not emerge as effectively in a different situation (Mosadeghrad and Yarmohammadian, 2006).

At disaggregate level, tables 5.9 and 5.10 show a slight variation in the result of the different groups of respondents. According to the responses of the city authority, teamwork among workers and attitude of leaders to open discussion with employees appear to be the two key factors that impact or have a very positive impact on effective sharing of knowledge. However in municipal authorities, the relationship between the co-workers and attitude of leadership have a very positive impact on effective sharing of knowledge, while for district authorities, the attitude of leadership to open discussion and teamwork among the workers are very important for effective sharing of knowledge.

The inference that can be drawn is that a different culture exists for different sizes of organisation. For example, for district authorities, the leadership style impacts on the effective sharing of knowledge, while for bigger organisations, such as city and municipal authorities, they prefer teamwork and the relationship between co-workers is very effective for the sharing of knowledge between employees within their organisation. The implication of this result is that leadership is an important determinant that can develop trust among employees. When there is trust among employees, they are willing to share knowledge among the team and have a relationship between co-workers. It is recommended that the determinant for the success of knowledge sharing is senior management support. According to Macneil (2001), senior management support can contribute significantly to the development of core competencies and skills through their role as facilitators of organisation learning in the workplace, specifically, by establishing a knowledge sharing environment in which employees are encouraged to apply their tacit and explicit knowledge to problem-solving situations.

Taking the above into consideration, and even though there were some slight deviations, the following can be recognised as key factors that impact on the effective sharing of knowledge:

- Attitude of leaders to open discussion with employees
- Teamwork among the workers
- Relationship between co-workers
- Trust between employees

It is now important to identify whether the type of local authority has an impact on the results discussed above. The test of null hypothesis was used to investigate this.

Null hypothesis H_0 – The culture that impacts on the effective sharing of knowledge in local authorities does not differ according to the various sizes with respect to the planning permission process

Table 5.11: The factors of culture that impact on the effective sharing of knowledge versus the type of local authority – mean rank comparison – Refer to planning authority and guideline of planning requirements

a) Refer to planning authority and guideline of planning requirement			
Ranks			
	Council	N	Mean Rank
Impact of rules and procedure	1.City Council	28	48.71
	2.Municipal Council	51	54.71
	3.District Council	24	50.08
	Total	103	
Teamwork among the workers	1.City Council	28	49.75
	2.Municipal Council	51	54.96
	3.District Council	24	48.33
	Total	103	
Attitude of leaders to open discussion with employees	1.City Council	28	53.00
	2.Municipal Council	51	52.84
	3.District Council	24	49.04
	Total	103	
Relationship between co-worker	1.City Council	28	56.14
	2.Municipal Council	51	45.14
	3.District Council	24	61.75
	Total	103	
Authority flow based on power distance	1.City Council	28	53.36
	2.Municipal Council	51	53.25
	3.District Council	24	47.77
	Total	103	

Table 5.12: Kruskal-Wallis Test Statistics for culture on effective sharing of knowledge – Refer to planning authority and guideline of planning requirements

a) Refer to planning authority and guideline of planning requirement					
Test Statistics ^{a,b}					
	Impact of rules and procedure	Teamwork among the workers	Attitude of leaders to open discussion with employees	Relationship between co-worker	Authority flow based on power distance
Chi-Square	1.053	1.213	.372	6.729	.804
df	2	2	2	2	2
Asymp. Sig.	.591	.545	.830	.035	.669
* result (Bold) are statistically significant at $p < 0.05$					

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Table 5.13: The factors of culture that impact on effective sharing of knowledge versus the type of local authority – mean rank comparison – Planning officer will refer to State Planning Dept. and NPPC

b) Planning officer will refer to: State planning dept. and NPPC			
Ranks			
	Council	N	Mean Rank
Impact of rules and procedure	1.City Council	28	49.50
	2.Municipal Council	51	55.41
	3.District Council	24	47.67
	Total	103	
Teamwork among the workers	1.City Council	28	48.63
	2.Municipal Council	51	55.38
	3.District Council	24	48.75
	Total	103	
Attitude of leaders to open discussion with employees	1.City Council	28	53.63
	2.Municipal Council	51	52.21
	3.District Council	24	49.67
	Total	103	
Relationship between co-worker	1.City Council	28	56.79
	2.Municipal Council	51	45.83
	3.District Council	24	59.52
	Total	103	
Authority flow based on power distance	1.City Council	28	53.77
	2.Municipal Council	51	53.63
	3.District Council	24	46.48
	Total	103	

Table 5.14: Kruskal-Wallis Test Statistics for culture on effective sharing of knowledge – Planning officer will refer to State Planning Dept. and NPPC

b) Planning officer will refer to: State planning dept. and NPPC					
Test Statistics ^{a,b}					
	Impact of rules and procedure	Teamwork among the workers	Attitude of leaders to open discussion with employees	Relationship between co-worker	Authority flow based on power distance
Chi-Square	1.652	1.537	.283	5.155	1.354
df	2	2	2	2	2
Asymp. Sig.	.438	.464	.868	.076	.508
* result (Bold) are statistically significant at $p < 0.05$					

The above was first examined using mean rank comparison (see Tables 5.11 and 5.13) for the two stages of the planning permission process, and further examined using the Kruskal-Wallis test. The results of the Kruskal-Wallis test are given in Tables 5.12 and 5.14.

The results, at the 5% level of significance, show that the p value is statistically insignificant in most instances. Thus, the null hypothesis is accepted for the above. This suggests that there are no differences in factors of culture that impact on effective sharing of knowledge, according to the various sizes of local authority. The inference that can be drawn from this result (Table 5.12 and 5.14) is that it contradicts the result in Table 5.9 and 5.10. The impact of culture on effective sharing of knowledge for 'refer to planning authority and guideline of planning requirements' and 'Planning officer will refer to State Planning Dept. and NPPC' parts of the planning permission process differ according to the various sizes of authority with respect to the planning permission process. The implication from this result is that different sizes of LAM have a different culture within their organisation. It is recommended that LAM have to pay attention to the different organisational cultures for each size of authority for encouraging employees' knowledge sharing by creating a work environment that encourages interaction among employees, open communication between departments and senior officers should facilitate knowledge sharing.

5.10 The Impact of motivation on the effective sharing of knowledge

Motivation is an important concept in most theories of learning. Motivation can be described as an inner state of need or desire or the driving forces by which individuals achieve their goals. Herzberg *et al.* (1959) developed the two-factor theory concerning employee motivation. This theory states that there are certain factors or influences in the workplace that cause job satisfaction. While Maslow (1970) classified motivation theory by the hierarchy of needs, which includes five basic levels of needs: physiological, safety, belonging, social esteem and self-actualisation. These levels of need should be satisfied consecutively.

Motivation can be described as being “intrinsic” or “extrinsic” in nature (Sansone and Harackiewicz, 2000). Extrinsic motivation relates to when employees are able to satisfy their needs indirectly, such as monetary compensations (Osterloh *et al.*, 2002). In contrast, intrinsic motivation is apparent when individuals’ behaviour is oriented towards the satisfaction of innate psychological needs rather than to obtain material rewards (Ryan and Deci, 2000), is self-defined (Loewenstein, 1999), self-sustained (Calder and Staw, 1975) and shows self-efficacy (Bandura, 1986). Therefore, understanding the theory and application of motivation is very important in managing knowledge sharing in making these LAM succeed. It is closely related to encouragement, consideration, anxiety and feedback. Employees can be motivated by both extrinsic and intrinsic factors that will fulfil their perceptions regarding success, reward and satisfaction.

Wasko and Faraj (2005) suggested that individual motivators might promote employee willingness to share knowledge. Previous research shows that employees are intrinsically motivated to contribute knowledge because engaging in intellectual pursuits and solving problems is challenging or pleasurable, they enjoy helping others and are self-efficacious (Wasko and Faraj 2000, 2005) Therefore, employees who enjoy helping others may be more favourably oriented towards knowledge sharing and more inclined to share knowledge. In order to introduce effective sharing of knowledge, it is essential to understand the motivational patterns of the employees that work in the agencies.

5.11 Analysis of qualitative data in the impact of motivational in the effective sharing of knowledge

The findings of the semi-structured interviews revealed some of the impacts of motivation on the effective sharing of knowledge. Questions for motivation were constructed according to the Herzberg dimension (motivator factors and hygiene factors), how individuals are driven by different needs and how this contributes towards effective sharing of knowledge. While different individuals may have different attitudes towards work, they are also likely to react differently towards management policies.

The factors have been identified in the table below.

Table 5.15: Results from interviewees regarding the impact of motivation on effective KS in planning permission

Code	Factor	Frequency	Percentage	Rank
HDPC1, HDOC1, POC1, HDPM1, HDPM2, HDOM1, HDOM2, HDPM3 HDPM4, HDPM5, HDOM3, POM1, HDPD1, HDOD1, HDOD2 HDOD3, HDOD4, HDOD5, HDOD6, HDOD7	Responsibility and working him/herself	20	100%	1
HDPC1, HDOC1, POC1, HDPM1, HDPM2, HDOM1, HDOM2, HDPM3 HDPM4, HDPM5, HDOM3, POM1, HDPD1, HDOD1, HDOD2 HDOD3, HDOD4, HDOD5, HDOD6, HDOD7	Relationship with co-workers	17	85%	2
HDPC1, HDOC1, POC1, HDPM1, HDPM2, HDOM1, HDOM2, HDPM3 HDPM4, HDPM5, HDOM3, POM1, HDPD1, HDOD1, HDOD2 HDOD3	Giving recognition	16	80%	3
HDPC1, HDOC1, POC1, HDPM1, HDPM2, HDOM1, HDOM2, HDPM3 HDPM4, HDPM5, HDOM3, POM1, HDPD1, HDOD1, HDOD2	Physical environment	10	50%	4

The findings from the interviews indicate that one hundred per cent (100%) or twenty 20 respondents believe that responsibility and working him/herself has an impact on the effective sharing of knowledge in their organisation. This shows that most individuals inherently like to take responsibility and not avoid working him/herself.

The divergence in sharing of knowledge between the two groups (professional and non-professional) or between planning officers and technical assistant and technician, indicates different goals, job responsibilities, personal views and practices for participating in sharing of knowledge activities. Another reason that individuals are reluctant to share knowledge is

because mistakes are not tolerated and also the 'blame culture', i.e., junior staff or junior technicians fear to take responsibility for what they are doing. According to Boone (1997), people do not share knowledge with those they do not trust. Other factors, such as employees' age, gender and experience, may also affect how effectively knowledge is shared in the organisation (Riege, 2005). Ojha (2005) found that differences in the levels of education were likely to reduce the sharing of common experiences. Hence, employees with a different education background from the rest of the team are less likely to participate in the sharing of knowledge. According to Wang (2004), individuals are more likely to have sharing intentions when they believe that sharing knowledge with colleagues is a basic part of work ethics.

Furthermore, Dewett (2007) confirmed that employee creativity is related to self-efficacy and interest in one's work. Therefore, knowledge sharing initiatives can also facilitate an individual's willingness to participate in the sharing of knowledge.

The interviewee of POC1 said that, *'...most of the junior staff are willing to share information and knowledge and they have high self-efficacy'*

Second, the relationship with co-workers was indicated as having the second highest (85%) impact on the effective sharing of knowledge. This shows that bureaucracy and the hierarchical level between management teams (Head of Department and Planning Officer) and non-technical (assistant planning and technician) lead to a diversity of knowledge in the sharing team. As mentioned earlier, non-technical staff fear to share because of the different levels of education and the fear that others will use the knowledge learned against them and that any ideas shared will be criticised by others – as noted by one of the interviewees below. O'Dell & Grayson (1998) indicated that social networks through communication, dialogue, and interaction between individuals or groups are important to support and to encourage employees' knowledge-related activities.

The interviewee of HDOC 1 said that, *"My department has created activities to build relationships between technical and non-technical staff .."*

Factors like trust should be considered because it is often presented as one of the most important motivators for the successful sharing of knowledge (Ford, 2003). Thus, trust between employees is viewed as a medium through which knowledge can be exchanged

smoothly in the planning permission process. This is parallel with Huang (2008), in that trust building in the workplace is the first step for effective knowledge sharing.

Third, the findings indicate that 80% believe that being given recognition has an impact on effective sharing, not with standing, that public service departments have implemented several policies, such as the New Remuneration System (NRS) and Malaysian Remuneration System (or Sistem Saraan Malaysia) whereby consideration for promotion, salary increments, training and placement of officers are to be more directly based on job performance, contribution towards departmental objectives, in particular, and the public service, in general. In the context of the planning permission process, there is no specific recognition given. Although there are opportunities for training and development to improve the capabilities and capacity of the workforce to deliver their services, most of the training and development focuses on technical aspects, with few focussing on the non-technical and support staff. Training activities undertaken by the Public Service Department (1984) are guided by a Training policy as elucidated in Service Circular No. 6/1984, of which the main objectives are:

- To develop capable and qualified officers
- To ensure the enhancement of skills, efficiency and productivity
- Able to provide high quality results
- To develop employees who are able to produce output of high quality

Therefore, ‘recognition’ is still an important management tool, in appreciation of the high level of behaviour for employees. This will build up the confidence, commitment and learning between employees, even if the result is not as good as planned. Saying ‘thank you’ or ‘well done’ can be a simple form of ‘recognition’ or reward in providing feedback on what he/she has done.

In the LAM setting, leaders should take certain steps to motivate members at both the individual and group level by:

- Allowing the needs of the employees to coincide with the needs of the department or organisation
- Developing morale – the mental, emotional and spiritual state of a person. Every decision or suggestion has an impact on the organisation

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- Allow employees to be part of the planning and problem solving problem
- Reward good behaviour

Leaders are a role model and have the power to influence motivation. According to Saint-Onge and Armstrong (2004), “leadership mobilises and determines the quality and rate of knowledge flow, providing a catalyst for staff to exercise their responsibilities, encourage self-initiation, trust, interdependence and partnering across an organisation”.

The physical environment has a 50% impact on the effective sharing of knowledge in LAM. The physical work environment and layout of work areas restrict the effective sharing practices. This is another barrier that is often overlooked that relates to the floor layout or spatial arrangements of work areas that commonly do not favour knowledge-sharing activities. Traditionally, offices and even departments tended to be arranged along hierarchies or management seniority rather than focusing on who needs to work together regularly and identifying which person benefits the most from the exchange of knowledge (Probst *et al.*, 2000). A well designed and safe working environment will enable better use to be made of the employees’ abilities and will, in most cases, help to provide satisfaction of human needs (Krogh, 2000). A comfortable working environment relates closely to cleanliness, which should be stressed by the management. The physical office space layout, design and configuration will encourage employee interactions, which, in turn, enhance an employee’s willingness to learn and share knowledge with others.

5.12 Analysis of quantitative data on the impact of motivation on the effective sharing of knowledge

It is widely acknowledged that the motivation factor is vital to any public sector in order to deal with leveraging existing knowledge, capturing tacit knowledge and preserving knowledge assets for use in the future. In the questionnaire survey, the questions were constructed to identify the respondents’ perceptions concerning the impact of motivation on the effective sharing of knowledge in local authorities of various sizes. The following analysis reflects the perception of individuals who are directly involved in the planning permission process (refer section 3.6).

Effective knowledge sharing

Table 5.16: Summary of the impact of motivation on effective sharing of knowledge – Mean Value Comparison according to the size – Refer to planning authority and guideline of planning requirements

a) Refer to planning authority and guideline of planning requirement								
	Local Authorities							
	City	Rank	Municipal	Rank	District	Rank	Overall	Rank
Employees skill and competencies (willing and able to share knowledge)	1.6786	1	1.8627	2	1.6667	1	1.7670	1
Relationship between co-worker and leaders	1.9286	2	1.6275	1	2.0417	2	1.8058	2
Giving special recognition and enhancing the expertise	2.3214	3	2.2157	3	2.0417	3	2.2039	3
Putting in place a conducive environment	2.5714	4	2.4118	4	2.4167	4	2.4563	4
Meaning of scale: 1 (A Very Positive Impact), 2 (Positive Impact), 3 (A Fairly Positive Impact), 4 (No Positive Impact At All)								

Table 5.17: Summary of the impact of motivation on effective sharing of knowledge – Mean Value Comparison according to the size – Planning officer will refer to State Planning Dept. And NPPC

b) Planning officer will refer to: State planning dept. and NPPC								
	Local Authorities							
	City	Rank	Municipal	Rank	District	Rank	Overall	Rank
Employees skill and competencies (willing and able to share knowledge)	1.6429	1	1.8627	2	1.6667	1	1.7573	1
Relationship between co-worker and leaders	1.9286	2	1.6275	1	1.9583	2	1.7864	2
Giving special recognition and enhancing the expertise	2.3214	3	2.2157	3	2.0417	3	2.2039	3
Putting in place a conducive environment	2.5714	4	2.4118	4	2.4167	4	2.4563	4
Meaning of scale: 1 (A Very Positive Impact), 2 (Positive Impact), 3 (A Fairly Positive Impact), 4 (No Positive Impact At All)								

At the aggregate level Tables 5.16 and 5.17, the results between the local authorities are shown to be very similar to each other. Employees' skills and competencies (willingness and able to share knowledge and the relationship between the co-workers and leaders) appear to be the two key factors of motivation that have a very positive impact on effective sharing of knowledge. The inference that can be drawn (Table 5.16 and 5.17) is that extrinsic motivation is implemented within LAM rather than intrinsic. The implications of this result (Table 5.16 and 5.17) are that LAM are lacking intrinsic motivation, such as recognition by management, bureaucracy in hierarchy, and encouragement from top management. Intrinsic motivation refers to the motivation to engage in an activity for itself and for the pleasure and satisfaction derived by individuals. In LAM, employees' satisfaction does not mean to ignore rules, regulations and level of management (bureaucracy in hierarchy) in order to satisfy employees. It is actually the ability of the management to create and maintain a good and lasting relationship with their employees. Extrinsic motivation is where individuals do not

engage in the activities out of pleasure but rather do so for some kind of reward that is external to the activity itself. For example, an extrinsically motivated employee may spend most of the time doing their work and tasks spurred on by the thought of their monthly salary, or by the thought of getting a good result in their annual performance appraisal for all their effort involved. It is recommended that LAM have to implement both types of motivation. This is vital for LAM, because intrinsic motivation is significant in promoting knowledge creation and sharing in an organisation (Osterloh and Frey, 2000). Moreover, trust is one of the intrinsic motivators that constitute the first step for effective knowledge sharing in the workplace (Harder, 2008).

At the disaggregate level (Table 5.16 and 5.17) the results between the city, municipal and district authorities are shown to be very similar to each other. The implications from this result (Table 5.16 and 5.17) are that all three types of LAM lack intrinsic motivation. This is because intrinsic motivation (giving special recognition) is the third ranked for all types of LAM. It is recommended that LAM implement both extrinsic and intrinsic motivation within their organisation, and additionally, LAM have to emphasise the implementation of this intrinsic motivation in large organisations, especially for city authorities.

The above factor, will affect the sharing of knowledge where between employees there is:

- Apprehension or fear that sharing may reduce their job
- Low awareness of the value of the benefit of sharing of knowledge with others
- Lack of trust

Taking the above into consideration, and even though there were some slight deviations, the following can be recognised as the key factors that impact on the effective sharing of knowledge:

- Employees skill and competencies (Willingness and able share knowledge)
- Relationship between co-worker and leaders
- Given special recognition and enhancing expertise
- Implement conducive environment

It is now important to identify whether the type of local authority has an impact on the results discussed above. The test of null hypothesis was used to investigate this.

Effective knowledge sharing

Null hypothesis H_0 – The motivation that impacts on the effective sharing of knowledge in local authorities does not differ according to the various sizes with respect to the planning permission process

Table 5.18: The factors of motivation that impact on the effective sharing of knowledge versus the type of local authority – mean rank comparison – Refer to planning authority and guideline of planning requirements

a) Refer to planning authority and guideline of planning requirement			
Ranks			
	Council	N	Mean Rank
Employees skill and competencies (willing and able to share)	1.City Council	28	49.75
	2.Municipal Council	51	54.96
	3.District Council	24	48.33
	Total	103	
Relationship between co-worker and leaders	1.City Council	28	56.14
	2.Municipal Council	51	45.14
	3.District Council	24	61.75
	Total	103	
Giving special recognition and enhancing the expertise	1.City Council	28	56.98
	2.Municipal Council	51	52.35
	3.District Council	24	45.44
	Total	103	
Putting in place a conducive environment	1.City Council	28	56.61
	2.Municipal Council	51	50.09
	3.District Council	24	50.69
	Total	103	

Table 5.19: Kruskal-Wallis Test Statistics for motivation on effective sharing of knowledge – Refer to planning authority and guideline of planning requirements

a) Refer to planning authority and guideline of planning requirement					
Test Statistics ^{a,b}					
	Employees skill and competencies (willing and able to share)	Relationship between co-worker and leaders	Giving special recognition and enhancing expertise	Putting in place a conducive environment	
Chi-Square	1.213	6.729	2.434	1.091	
df	2	2	2	2	
Asymp. Sig.	.545	.035	.296	.580	
* result (Bold) are statistically significant at $p < 0.05$					

Table 5.20: The factors of motivation that impact on effective sharing of knowledge versus the type of local authority – mean rank comparison – Planning officer will refer to State Planning Dept. and NPPC

b) Planning officer will refer to: State planning dept. and NPPC			
Ranks			
	Council	N	Mean Rank
Employees skill and competencies (willing and able to share)	1.City Council	28	48.63
	2.Municipal Council	51	55.38
	3.District Council	24	48.75
	Total	103	
Relationship between co-worker and leaders	1.City Council	28	56.79
	2.Municipal Council	51	45.83
	3.District Council	24	59.52
	Total	103	
Giving special recognition and enhancing the expertise	1.City Council	28	56.98
	2.Municipal Council	51	52.35
	3.District Council	24	45.44
	Total	103	
Putting in place a conducive environment	1.City Council	28	56.61
	2.Municipal Council	51	50.09
	3.District Council	24	50.69
	Total	103	

Table 5.21: Kruskal-Wallis Test Statistics for motivation on effective sharing of knowledge – Planning officer will refer to State Planning Dept. and NPPC

b) Planning officer will refer to: State planning dept. and NPPC				
Test Statistics ^{a,b}				
	Employees skill and competencies (willing and able to share)	Relationship between co-worker and leaders	Giving special recognition and enhancing expertise	Putting in place a conducive environment
Chi-Square	1.537	5.155	2.434	1.091
df	2	2	2	2
Asymp. Sig.	.464	.076	.296	.580
* result (Bold) are statistically significant at $p < 0.05$				

The above was first examined using mean rank comparison (see Table 5.18 and 5.20) for both stages of the planning permission process, and further examined using the Kruskal-Wallis test. The results of the Kruskal-Wallis test are given in Tables 5.19 and 5.21.

From the results of both tables, at the 5% level of significance, the p value is statistically insignificant in most instances. Thus, the null hypothesis is accepted for the above. This suggests that the motivation that impacts on the effective sharing of knowledge in local authorities does not differ according to the various sizes of local authorities.

5.13 Summary

This chapter addresses part of the fourth objective.

According to the findings from the questionnaire and interviews, many factors were obtained based on the objectives.

- Impact of Organisational structure on the effective sharing of knowledge on the planning permission process. These are:
 1. Occupational specialisation and task differentiation
 2. Top management decision making
 3. Rules and procedure
 4. Restricted document (Confidential status of document)
- Impact of culture on the effective sharing of knowledge on the planning permission process. These are:
 1. Attitudes of leaders to open discussion with employees
 2. Teamwork among the workers
 3. Relationship between co-workers
 4. Trust between employees
- Impact of motivation on the effective sharing of knowledge on the planning permission process. These are:
 1. Employees skill and competencies (Willingness and able to share knowledge)
 2. Relationship between co-workers and leaders
 3. Given special recognition and enhancing expertise
 4. Implement conducive environment

It is imperative for the top management of local authorities to take the necessary steps to overcome the aforementioned factors that impact on the effective sharing of knowledge. Because if such factors are not addressed, it could lead to further challenges, and, ultimately, if implemented will result in effective knowledge sharing initiatives.

Considering what has been discussed above, the following inferences and implications can be made:

1. Hierarchical organisations inhibit or slow down most sharing practices, hence, communication and knowledge flow are confined to a selected group of individuals within the organisation. Therefore, to overcome and minimise the hierarchical organisation, the top management and managerial level need to have open communication through real time exchange and feedback, which can be facilitated through dialogue and open discussion. Additionally, a combination of a formal organisational structure with a non-hierarchical and self-organising organisational structure would improve the sharing of knowledge capabilities.
2. Attitude and behaviour are considered important elements, which affect the sharing of knowledge, and can be changed by providing a platform that concentrates on knowledge as the core competence. Education and training (internal or external) play a significant role in any organisation for organisational change. Education and training programmes should cover all levels of employees, including the managerial level and supporting level. When employees are given sufficient training, they will certainly develop skills and be able to translate them into action and share their knowledge with other officers in the organisation. However, the important thing is that any changes need to be developed in line with the existing organisational culture.
3. Employee motivation is a continuing challenge at work. Particularly in work environments that do not emphasise employee satisfaction, There are several ways in which a manager or leader can create a work environment that will foster and influence an increase in employee motivation:
 - Communicate responsibly and effectively any information that employees need to perform their jobs effectively.
 - Implement an open door policy for staff members to talk, share ideas, and discuss concerns.
 - Provide the opportunity for employees to develop their skills and abilities.
 - Provide more authority for the employees to self-manage and make decisions. Within the clear framework of the planning permission process and ongoing effective communication, delegate decision making after defining the limits and boundaries.

CHAPTER 6. THE MAIN CHALLENGES AND CRITICAL SUCCESS FACTORS ASSOCIATED WITH EFFECTIVE KNOWLEDGE SHARING IN LOCAL AUTHORITIES

6.1 Introduction

This chapter is structured according to research objective D (section 1.2) and starts with the generic view of the main challenges and critical success factors for effective knowledge sharing. Many factors have been established by researchers in respect of the main challenges and critical success factors. It presents the analyses of the data both from the survey and semi-structured interviews. This chapter is divided into two main sections. The first section is the analysis of the main challenges, which is followed by the second section, critical success factors for effective knowledge sharing in local authorities. Throughout, the chapter reflects on the findings in order to fulfil the research objective.

To investigate and document the main challenges and critical success factors for effective knowledge sharing in local authorities with respect to the planning permission process.

6.2 Challenges: Definition

According to the Oxford dictionary, challenges are “a task or situations that test someone’s abilities”. Many organisations are faced with challenges in respect of effective knowledge sharing within their organisation. In practice, most of the traditional disciplines of management in organisations do not lend themselves to knowledge management. Traditional notions about strategy, HRM and finance should be re-examined and revised in order to manage for competitive advantage creatively, effectively and efficiently. In addition, with the vast reservoir of knowledge in a wide variety of organisational processes, i.e., planning permission process, best practices, know-how, trust, culture and norms, this knowledge is diffused and mostly unrecognised.

Derived from various literature sources, in general, the main challenges faced by LAM can be classified into six (6) main categories.

6.2.1 Organisational culture

Among the many dimensions that facilitate the effective knowledge sharing within an organisation, prior research has consistently identified organisational culture as one of the main challenges, e.g., encourage knowledge sharing and a supportive culture (Liebowitz, 1999) and working environment (Ipe, 2003). Wong and Aspinwall (2005) identified other important facets of a knowledge-oriented culture, which include such attributes as trust, collaboration and openness.

Sharing of knowledge requires interaction among individuals, and through this sharing among organisational members mutual understanding can be developed (Nonaka and Takeuchi, 1995). According to Bures (2003), there are different organisational cultural factors that impact knowledge sharing, which differ across organisations. Therefore, to ensure people keep on sharing, it is important for LAM to have a culture in which all the employees know what and where to share their knowledge.

6.2.2 Organisational structure

As mentioned earlier in Chapter 5, the organisational structure presents another challenge to LAM to ensure the effectiveness of knowledge sharing. Liebowitz and Cheng (2003) suggested that knowledge sharing in government poses some unique challenges; they found that the government agencies are typically hierarchical and bureaucratic organisations. They added that most employees seem reluctant to share knowledge because they “keep knowledge close to their heart as they move through the ranks by the knowledge is power paradigm”. In the context of LAM, with their formalised and multiple hierarchical structures, standardised systems or procedures govern people’s action and there is minimal or no discretionary power vested in employees. The emphasis is on rules in respect of the difficulties and challenges, especially in dealing with procedures, the confidential status of documents and policies regarding planning approval leading to effective knowledge sharing. Thus, there is a hierarchical culture in which there are multiple layers of vertical and horizontal silos

operating in relative isolation (refer to section 6.2). These structure and power relationships present a challenge for effective knowledge sharing in these organisations.

Social interaction refers to the extent to which organisational members interact with each other in terms of trust, communication and coordination. Prior studies have recognized the importance of interpersonal social interaction for enabling knowledge sharing behaviour among employees. The role of social ties as channels for knowledge sharing (Tsai and Ghoshal, 1998) and human network (Cardinal and Hatfield, 2000) were the key vehicles for the sharing of knowledge. Koskinen *et al.* (2003) argued that different team members have different professions and backgrounds, and they tend to seek relevant knowledge from trustworthy and capable colleagues. Thus, trusting relationships improve the willingness of individuals to exchange and absorb the knowledge of others.

6.2.3 Information technology

The use of information technology in the LAM represents a significant investment of public resources and the expectations made of returns on the effectiveness of doing business by LAM. However, the success of using IT depends on several factors, such as resources availability, technology infrastructure and available knowledge. Resources availability refers to time, manpower and financial budget. Most of the smaller local authorities have limited funds, human resources, IT knowledge and expertise from which to draw, which is in contrast to larger local authorities that may be in a better position with regard to resources to meet the needs of an IT development and deployment process. Karim (2003), and Karim and Khalid (2003) noted that district and municipal local authorities often lack the necessary resources for training and development to deal with the current and future technology, IT and IT infrastructure.

In addition, employees in LAM normally perceive IT systems as extra work; hence, they do not see any benefit in using them, which presents a barrier for them to change or use the various tools (software), especially aging workers. According to Goh (2003), people's attitudes are the reasons for resistance rather than the constraints of technology. Riege (2005) mentioned that barriers to technology are the lack of integration of the IT system, lack of technical support, reluctance to use IT systems and lack of training programmes for

familiarisation with IT system and process. Therefore, the top management at local authorities would be able to help their organisation exploit the technology opportunities and be aware of the long-term economic considerations in devising strategies for IT implementation.

6.2.4 Motivation

Facilitating knowledge sharing within organisations, especially in LAM, is a difficult task; the willingness of individuals to share and integrate their knowledge is one of the central challenges. People or employees are willing to share and offer their knowledge with others when they know their colleagues. Intrinsic and extrinsic motivation (refer to 5.10), i.e., as recognition of employee performance, is high on the list of employees' needs for motivation. Many of the top management, even in the context of the Malaysian public sector, equate reward and recognition with monetary gifts. While employees appreciate money, they also appreciate praise, a verbal or written thank you, out-of-the-ordinary job content opportunities, and attention from their supervisor. The examples given if not considered by management can become a challenge to the effective sharing of knowledge in an organisation.

6.2.5 Leadership

There are various approaches that can be very useful to motivate individuals in organisations to commit and share knowledge. Effective leadership is one of the noticeable approaches. Leadership is often considered a role model and is projected to play a major role in knowledge creation, foster sharing and exploitation and not just the management in the organisation. Bass (1985) listed four factors of leadership: idealised influence, inspirational motivation, intellectual stimulation and individualised consideration. Therefore, an effective leadership support is essential for the effective sharing of knowledge in an organisation (Liebowitz, 2000). Effective leadership must continually develop management skills, knowledge and experience and also be capable of understanding the role and function of knowledge workers, which can be used during work and other resources to accomplish the organisational mission and goals.

6.2.6 Process

An organisation's ability to effectively leverage its knowledge is highly dependent on its people, who actually create, codify, share, and use the knowledge. Explicit knowledge can be shared easily, while tacit knowledge is difficult to share. Tacit knowledge is hard to communicate because it is socially embedded and based on personal experience (Osterloach and Frey, 2000). According to Ipe (2003), the sharing of knowledge between individuals is the process by which knowledge held by an individual is converted into a form that can be understood, absorbed, and used by other individuals. The process of sharing knowledge (tacit and explicit knowledge) can emerge into a knowledge creation spiral and positively influences organisational performance (Nonaka and Takeuchi, 1995).

Therefore, organisations need to develop a strategy on KS before any KSI is designed or implemented. Many researchers have proposed a KM strategy, between various approaches and different aspects of KM. The table below shows the Knowledge Management strategy according to different approaches and aspects.

Table 6.1: KM strategy according to different approaches and aspects

KM Strategy	Aspect	Developed by
Knowledge accessibility and knowledge transformation	Explicit and tacit knowledge	Nonaka and Takeuchi's Matrix of knowledge type
Business Process	Nature and strength of the organisation	Karl Wiig and APQC
Business Process	Large corporations	McKinsey & Company
End Results	Organisational activities	Treacy & Wiersema's Value Disciplines
Knowledge and End Results	Explicit knowledge connection between competitive situation	Zack's Knowledge Strategy

(Source: Haggie and Kingston, 2003)

According to Holsapple and Joshi (2000) the KM strategy is determined by the environmental influence on KM success, in which they argue that organisations have little control over environmental influence. In addition, appropriate training and education are the most important part of an organisation's overall strategy, as they may promote sharing past successful knowledge sharing experiences or uncover related skills that can enhance knowledge sharing, such as emotional, listening skills and responsibility.

Challenges and CSFs

There are many benefits to both the organisation and individual through education and training:

- Employees feel that they are part of the organisation's family, which creates the sense of belonging in all employees
- Creates professional development and enhances the employee's skills
- Increases job satisfaction and employee morality, and enhances employee motivation
- Improves the efficiency of the planning permission process

As suggested by Das (2003), organisations should facilitate employees drawing on their own past experience to harness and share knowledge. Therefore, several factors need to be considered when deciding on the KM approaches for an organisation.

The main challenges for effective knowledge sharing in LAM were derived from a thorough review of the literature, especially that pertaining to the context of LAM. The table below highlights the main challenges for effective knowledge sharing.

Challenges and CSFs

Table 6.2: The main challenges for effective knowledge sharing in an organisation.

Challenges	Liebowitz (1999)	Ipe (2003)	Kim and Lee (2005)	Holsapple and Joshi (2000)	Hasanali (2002)	Kalkan (2008)	Proposition by researcher
Culture	A supportive culture	Work environment and relationship	Trust and social network		Culture	Cultural complexity	Culture
Organisational Structure	A CKO or equivalent and a KM infrastructure		<ul style="list-style-type: none"> • Centralisation • Formalisation • Performance-based reward 	Resources	Structure, roles and responsibility	Organisation structure	Organisational Structure
Information Technology	Knowledge ontologies		<ul style="list-style-type: none"> • Employee's utilisation of IT • End user focus of it application 		IT infrastructure	Utilisation of IT	Information technology
Motivation	Incentive to encourage knowledge sharing	Motivation and reward					Motivation
Leadership	Senior leadership support			Leadership	Leadership		Leadership
Process	KM Strategy			Control and coordination	Measurement	Human resource Dealing with tacit knowledge	Education and Training

6.3 Analysis of qualitative data in respect of the main challenges for effective knowledge sharing in local authorities

The interview findings reveal certain factors concerning the main challenges for effective knowledge sharing in local authorities. The factors have been identified in the table below:

Table 6.3: Results from interviewees regarding the main challenges for effective knowledge sharing in local authorities.

Code	Factor	Frequency	Percentage	Rank
HDPC1,HDOC1,POC1,HDPM1,HDPM2,HDOM1,HDOM2,HDPM3 HDPM4,HDPM5,HDOM3,POM1,HDPD1,HDOD1,HDOD2 HDOD3,HDOD4,HDOD5,HDOD6,HDOD7	Challenges of using Information technology	20	100%	1
HDOC1,POC1,HDPM1,HDPM2,HDOM1,HDOM2,HDPM3 HDPM4,HDPM5,HDOM3,POM1,HDPD1,HDOD1,HDOD2 HDOD3,HDOD4,HDOD5,HDOD6,HDOD7	Challenge in encouraging KS and supportive culture	19	95%	2
HDPC1,HDOC1,POC1,HDPM1,HDPM2,HDOM1,HDOM2,HDPM3 HDPM4,HDPM5,HDOM3,HDPD1,HDOD1, HDOD3,HDOD4,HDOD5,HDOD6,HDOD7	Challenge in management support and Leadership	18	90%	3
HDPC1,HDOC1,HDPM1,HDPM2,HDOM1,HDOM2,HDPM3 HDPM4,HDPM5,HDOM3,POM1,HDPD1,HDOD2 HDOD3,HDOD4,HDOD5,HDOD6,HDOD7	Challenge in and hierarchical bureaucratic organisational structure	18	90%	4
HDOC1,POC1,HDPM1,HDPM2,HDOM1,HDOM2, HDPM4,HDPM5,HDOM3,POM1,HDPD1,HDOD2 HDOD3,HDOD4,HDOD5,HDOD6,HDOD7	Challenge in Motivation	17	85%	5
HDPM1,HDPM2,HDOM1,HDOM2,HDPM3 HDPM4,HDPM5,HDOM3,POM1,HDPD1,HDOD1,HDOD2 HDOD3,HDOD4,HDOD5,HDOD6,HDOD7	Challenge in and education training	17	85%	6

The findings from the interviewees concerning the main challenges for effective KS in the planning permission process (Table 6.3) indicate that 100% agreed that the challenges of using information technology is the main challenge followed by challenge in encouraging KS and supportive culture 95%, challenge in management support and leadership and challenge in hierarchical and bureaucratic organisational structure (90%), challenge in motivation (85%) and challenge in education and training (75%).

Challenges and CSFs

It is clear that information technology plays an important role in local authorities in managing data and information before they are transformed into knowledge. However, the success of using IT depends on the resources, such as infrastructure, financial budget, manpower and lack of knowledge about technology. These have been highlighted by interviewees.

The interviewee of HDOD2 said that, “...*We have a limitation for financial budget for information technologyand the infrastructure*”

The interviewee of HDOM3 said that, “...*not all of our staff knows how to operate the planning approval system and geographical information system*”

As stated, the challenge of encouraging KS and a supportive culture is ranked second highest (95%). This is because most of the staff, especially aging staff, feel comfortable with their position. Furthermore, the planning permission process involves multi tasking (details in section 2.2.6) and it appears that the impact of the workload and time factor, results in the attitude that IT is additional work.

The interviewee of HDPM 1 said that, “...*aging employees find it difficult to accept any changes made in the organisation...*”

The discussion in section 6.2.5 and 6.7.1 in this chapter (leadership) of this research suggest that the management in LAM often oversee every aspect of their operation and decision making, which, in general, is centralised with the ultimate power of control in their hands. In the planning permission process, the leader's personality, skills, responsibilities, attitudes and behaviour have a decisive influence on the organisational strategy. They have a significant influence in supporting the organisational knowledge programme and practices. Hence, the lack of management support remains a challenge because the management in LAM are responsible for implementing effective knowledge sharing initiatives through providing appropriate training, creating an appropriate culture and adopting appropriate processes and tools.

Challenges and CSFs

As mentioned in chapter 5, a hierarchical and bureaucratic organisational structure inhibits or slows down most of the knowledge sharing process, and, in certain cases, the physical work environment and layout of work areas restricts an effective sharing practice, even though the confidential status of documents places limits or restricts the flow of information between employees.

The interviewee of HDPC 1 said that, “...*in certain cases that involve high impact or government projects we limit the flow of information.....*”

For education and training and motivation, 17 out of 20 (85%) interviewees noted that the provision of an appropriate education and training for knowledge sharing was a challenge. This is because of lack of time, financial budget, a formal training strategy and because most of the training programmes are allocated to certain people.

Detailed discussions on each of the main challenges for effective knowledge sharing, as shown in Table 6.3, are as follows:

- The need to utilise information technology is discussed in section 6.2.3 and 6.7.3 in this chapter
- Encourage KS and a supportive culture is discussed in section 6.2.1 and 6.8.3 in this chapter
- Lack of management support for effective knowledge sharing is discussed in section 6.7.1 in this chapter
- Organisational structure is discussed in section 6.2.2 in this chapter
- The need for an appropriate strategy, i.e., education and training programmes, is discussed in section 6.7.2 of this chapter
- The need to adopt appropriate motivation factors for knowledge sharing is discussed in section 5.10 of chapter 5.

Given the above discussion, the main challenges from the qualitative findings are:

1. Challenges of using IT application
2. Encourage KS and supportive culture

Challenges and CSFs

3. Management support and leadership
4. Hierarchical and bureaucratic organisational structure

6.4 Analysis of quantitative data concerning the main challenges for effective knowledge sharing in local authorities

Tables 6.4 and 6.5 show the main challenges for effective knowledge sharing in the two stages of the planning permission process. From the list, thirteen questions were constructed from the factors that present the main challenges (as listed in table 6.2).

A close comparison of the two tables indicates that there is no significant difference in the mean value according to the type of local authority. At the aggregate level, most of the local authorities for 'refer to planning authority and guideline of planning requirements' indicate that leader commitment in promoting knowledge sharing is very challenging in the effective knowledge sharing, followed by exploiting employees' skills, relationship between co-workers and leaders, education and training and using IT application. The importance of leadership commitment through effective knowledge sharing was discussed in section 6.2.5 in this chapter.

Table 6.4: The main challenges concerning effective knowledge sharing in the planning permission process (refer to planning authority and guideline of planning requirements) according to type of local authority

a) Refer to planning authority and guideline of planning requirement								
	Local Authorities							
	City	Rank	Municipal	Rank	District	Rank	Overall	Rank
Gaining leaders' commitment in promoting KS	1.6071	1	1.7647	1	2.1667	7	1.8155	1
Exploiting employees' skills where they are willing	1.6429	2	1.9020	3	2.1667	6	1.8932	2
Relationship between co-workers and leaders	1.8214	3	2.0196	7	2.0833	5	1.9806	3
Using education and training for the creation of new	1.8571	4	1.9412	4	2.2917	8	2.0000	4
Using IT application	2.0000	6	2.1373	9	1.7083	1	2.0000	5
Motivating teamwork participation in the sharing of	2.1071	8	1.9608	5	2.0417	4	2.0194	6
Decision by top management that negatively affects	2.1429	9	2.0392	8	1.8750	2	2.0291	7
Procedure, confidential status of document and po	2.1429	10	1.8824	2	2.3333	11	2.0583	8
Built trust so that knowledge can share freely	2.0714	7	1.9608	6	2.4167	12	2.0971	9
Giving special recognition	1.9643	5	2.1569	10	2.2500	10	2.1262	10
Information and authority flow based on power dis	2.2500	11	2.1765	11	2.2083	9	2.2039	11
Providing necessary training	2.4643	12	2.3137	13	2.0000	3	2.2816	12
Putting in place a conducive environment	2.8214	13	2.3137	12	2.5000	13	2.4951	13
Meaning of scale: 1 (Very Challenging), 2(Challenging), 3 (Fairly Challenging), 4 (Not Challenging At All).								

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Table 6.5: The main challenges concerning effective knowledge sharing in the planning permission process (Planning officer will refer to State Planning Department and NPPC) according to type of local authority

b) Planning officer will refer to : State planning dept and NPPC								
	Local Authorities							
	City	Rank	Municipal	Rank	District	Rank	Overall	Rank
Gaining leaders' commitment in promoting KS	1.7500	2	1.8039	1	2.3333	10	1.9126	1
Using IT application	2.1429	7	1.8039	2	2.1250	3	1.9709	2
Exploiting employees' skills where they are willing	1.7143	1	2.0392	5	2.2500	5	2.0000	3
Relationship between co-workers and leaders	1.8929	4	2.0392	4	2.2083	4	2.0388	4
Motivating teamwork participation in the sharing of	2.1429	6	1.9804	3	2.5000	12	2.1456	5
Decision by top management that negatively affects	2.1429	8	2.0784	6	2.2917	7	2.1456	6
Procedure, confidential status of document and po	1.8571	3	2.2353	11	2.3333	9	2.1553	7
Information and authority flow based on power disl	2.1071	5	2.2157	10	2.1250	2	2.1650	8
Built trust so that knowledge can share freely	2.1786	9	2.1373	7	2.2917	6	2.1845	9
Using education and training for the creation of ne	2.2143	11	2.1765	8	2.2917	8	2.2136	10
Giving special recognition	2.2143	10	2.2157	9	2.3333	11	2.2427	11
Providing necessary training	2.5000	12	2.3137	13	2.0417	1	2.3010	12
Putting in place a conducive environment	2.8214	13	2.3137	12	2.5833	13	2.5146	13
Meaning of scale: 1 (Very Challenging), 2(Challenging), 3 (Fairly Challenging), 4 (Not Challenging At All).								

However, for 'Planning officer will refer to State Planning Department and NPPC' the main challenge is gaining leader's commitment in promoting KS, followed by using IT application, exploiting employees' skills, relationship between co-workers and leaders, motivating teamwork participation are the challenging factors for effective knowledge sharing. The inference that can be drawn from (Table 6.4 and 6.5) is that it is very challenging for LAM to create leaders that are very committed to promoting knowledge sharing. This is because, according Moffett *et al.* (2003), the leader's commitment plays a key role in influencing the success of KS. Good leadership can successfully promote a knowledge sharing culture by directly incorporating knowledge in its business strategy and can also change employees' attitudes and behaviour.

The implication from this result is that good leadership is a key driver for effective KS and the absence appears to have resulted in the failure of KSI. Therefore, it is recommended that it is essential for LAM to provide good training for their managers to make them competent in KSI.

At the disaggregate level, most of the local authorities for 'refer to planning authority and guideline of planning requirements' for both city and municipal authorities indicate that leader's commitment in promoting knowledge sharing is very challenging in the effective knowledge sharing. For district authorities, using IT application is very challenging for them. However for 'Planning officer will refer to State Planning Department and NPPC' the main challenge for city authorities is exploiting employees' skill, for municipal authorities the main challenge is gaining leader's commitment in promoting KS, while for district

authorities, the main challenge is providing necessary training. The inference that can be revealed from this (Table 6.4 and 6.5) is that challenges depend on the size of organisation. For example for local authorities 'refer to planning authority and guideline of planning requirements' for district authorities, using IT application is very challenging within their organisation. One of the reasons for this may be that they are required to use various data (including data mining, databases and data warehouse) to identify applications for the planning permission process before submitting to the State Planning Department, which requires expertise in the use of the planning approval system and geographical information system. The IT infrastructure, however, has a wide range of estimated budget, which may be attributed to several factors including the type of local authority, and involving upgrading of the technical infrastructure. The implications of this result is that the challenge that the authority will face with regard to knowledge sharing depends on the size of the authority. It is recommended that LAM have to overcome all the challenges that their organisation faces with regard to knowledge sharing. These challenges will obstruct effective knowledge sharing within their organisation.

Taking all the above into consideration, and even though there were some slight deviations, overall, the following can be recognised as the main challenges for effective knowledge sharing:

- Leadership commitment to promoting KS
- Exploiting employee's skill where they are willing to share
- Using IT application
- Relationship between co-worker and leaders

It is now important to recognise whether the type of local authority has an impact on the results discussed above. The test of null hypothesis was used to investigate this.

Null hypothesis H_0 – The main challenges that impact on effective knowledge sharing in local authorities do not differ according to the various sizes with respect to the planning permission process

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Table 6.6: Kruskal-Wallis Test Statistics for main challenges that impact on effective knowledge sharing –Refer to planning authority and guideline of planning requirements

a) Refer to planning authority and guideline of planning requirement													
Test Statistics ^{a,b}													
	Procedure, confidential	Exploiting employees'	Gaining leaders'	Decision by top	Using education and	Relationship between co-	Motivating teamwork	Giving special	Putting in place	Information a and authority	Built trust so that	Using application	IT Providing necessary
Chi-Square	6.915	4.977	7.021	2.283	7.129	1.945	1.284	2.303	10.478	.229	8.652	7.965	7.925
df	2	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.032	.083	.030	.319	.028	.378	.526	.316	.005	.892	.013	.019	.019
* result (Bold) are statistically significant at $p < 0.05$													

Table 6.7: Kruskal-Wallis Test Statistics for main challenges that impact on effective knowledge sharing –Planning officer will refer to State Planning Dept and NPPC

b) Planning officer will refer to : State planning dept and NPPC													
Test Statistics ^{a,b}													
	Procedure, confidential	Exploiting employees' skills where	Gaining leaders' commitment	Decision by management	Using education and training for the workers and	Relationship between co-	Motivating participation in	Giving special recognition	Putting in place	Information a and authority	Built trust so that knowledge	Using application	IT Providing necessary training
Chi-Square	6.509	6.069	9.123	1.478	.574	2.650	8.175	.214	10.156	.689	.979	6.379	6.691
df	2	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.039	.048	.010	.478	.751	.266	.017	.899	.006	.709	.613	.041	.035
* result (Bold) are statistically significant at $p < 0.05$													

This was further examined using the Kruskal-Wallis test. The results of the Kruskal-Wallis test are given in tables 6.6 and 6.7. The Kruskal-Wallis statistic measures how much the group ranks differ from the average rank of all groups. Thus, at the 5% level of significance, in most instances, the results suggest that the main challenges have an impact on the effective knowledge sharing in the planning permission process ('Refer to planning authority and guideline of planning requirements' and 'Planning officer will refer to State Planning Dept. and NPPC'). This rejects the null hypothesis and the factor impacts are shown below.

1. For 'Refer to planning authority and guideline of planning requirements';

- Procedure, confidential status of document and policies
- Gaining leaders' commitment in promoting KS
- Using education and training for the creation of new knowledge
- Putting in place a conducive environment
- Build trust so that knowledge can be shared freely
- Using IT application
- Providing necessary training

2. And for 'planning officer will refer to State Planning Dept. and NPPC'

- Procedure, confidential status of document and policies
- Exploiting employees' skills where they are willing to share
- Gaining leaders' commitment in promoting KS
- Motivating teamwork participation in the sharing of knowledge
- Putting in place a conducive environment
- Using IT application

The type of local authority has an impact on effective knowledge sharing in the planning permission process. These views appear to be based on various reasons and have diverse implications:

1. The support for organisational resources is huge for large organisations, especially financial budgeting, manpower and IT facilities, but in certain circumstances employees find it difficult to share their knowledge because they consider that knowledge is power.
2. Large organisations (city and municipal authorities) have employees for specific tasks and the high ranking of organisational or individual attitude and cultural difference is a challenge to the effective sharing of knowledge.
3. The organisational structure for large organisations has the power to delegate some of the responsibilities to lower management, thus, freeing their time to focus on the knowledge management strategy.
4. Smaller organisations, such as district authorities, in which the number of employees is small, are usually united under common beliefs and values, which imply that it is easier for the smaller organisations to change and implement effective knowledge sharing.

6.5 Critical Success Factor (CSF's): Definition

A number of researchers have established and defined CSF's, particularly Rochart (1979) defined CSF's as 'those few key areas of activity in which favourable results are absolutely necessary for a particular manager to reach his or her goals'. Followed by Digman (1990) and

Kanji & Tambi (1999) who defined various aspects that must go well to ensure the success of an organisation. CSF's in the organisation can be determined through several methods or techniques (see table below). Leidecker and Bruno (1984) identified eight techniques for identifying CSF's. According to Cerminaro (2010), making CSFs explicit and communicating them to everyone involved, can help keep the business and project on track towards the common aims and goals. He proposed six steps to identify the CSF's for a business or project; establish mission and strategic goals, determine each strategic goal that is essential to achieve this goal, evaluate the list of candidate CSFs to find the absolute essential elements for achieving success, monitor and measure, communicate and re-evaluate CSF's to ensure it keeps moving forwards. From the above definitions, the management have to give extensive attention and support to CSF's as points, areas or goals to achieve the mission, quality and higher performance. Consequently, these areas have to be defined and measured before an organisation starts implementing any task or projects.

Table 6.8: Research methods used for CSF identification

Research Method	Examples
Action research	Jenkins <i>et al.</i> (1999)
Case studies	Gibson <i>et al.</i> (1999); Summer (1999)
Delphi technique	Atthirawong and McCarthy (2001); Brancheau <i>et al.</i> (1996)
Group interviewing	Khandewal and Miller (1992)
Literature review	Esteves and Pastor (2000); Umble and Umble (2001)
Multivariate analysis	Dvir <i>et al.</i> (1996)
Scenario analysis	Barat (1992)
Structured interviewing	Rockart and Van Bullen (1986)

6.6 Early research on Knowledge Management and Knowledge Sharing in CSF's

In knowledge management, critical success factors can be viewed as those activities or practices that should be addressed in order to ensure its successful implementation. As mentioned earlier in section 2.4, KM attempts to focus specifically on enhancing learning and performance in organisations. While in the context of KS, it focuses on how to explore the social relationship through which knowledge is shared and how to explore the needs of organisations to personalise strategies so that members of an organisation can interact and facilitate the sharing of knowledge. Therefore, these practices would either need to be nurtured if they already exist or be developed if they are still not in place. In the context of

CSF, no systematic work exists for the implementing of KS in local authorities, however, an appropriate set of CSF's, which are relevant for the planning permission process in local authorities will help them to keep in mind the important issues that should be addressed when designing and establishing KS initiatives. Based on the definitions above, the CSF's in this research focus on those internal factors that are controlled by the organisation.

Earlier research on KM and KS has been done by many researchers. Skyrme and Amidon (1997) identified seven key success factors, while a survey, which was conducted by Davenport et al. (1998) on 24 companies to evaluate the success factor, defined nine major factors. Similar findings were arrived at by a number of researchers. Holsapple and Joshi (2000) found that factors, such as leadership and top management support, were crucial for the success of a few KM projects. Xiong and Deng (2008) highlighted effective communication, shared mindsets, training and leadership as critical success factors for effective knowledge sharing in Chinese joint ventures.

In the context of Malaysia, Wong (2005) conducted a survey on SME's, and highlighted a set of eleven key success factors: management leadership and support, culture, information technology, strategy and purpose, measurement, organisational infrastructure, processes and activities, motivational aids, resources, training and education and HRM. A similar finding was arrived at by Sin *et al.* (2009) who found that strategy and leadership, corporate culture, people and IT were factors for KM enablers towards successful new product development in semiconductor manufacturing firms.

6.7 CSF's in Public Sector

Many researchers have attempted to draw up a comprehensive list of critical success factors for the successful implementation of knowledge sharing in different studies and contexts. Although the public sector is traditionally slower to embrace and implement knowledge management or knowledge sharing, they know the importance of innovative management practices. According to Bate and Robert (2002), there is little published research of its implementation in this context. However, examples, include the police management role in knowledge sharing (Berg and Dean, 2008), KM modelling in a science-based initiative in the

Canadian public service (Girard and Mc Intyre, 2010), and the issue of KM in the public sector (Cong and Pandya, 2003).

In the Malaysian public sector, research on KM and KS has shown a slight increase. A study carried out by Supar *et al.* (2005) of three selected Higher Academic Institutions, identified four significant factors – culture, IT, communication and organisational support – that affect knowledge sharing and its effects on performance. Furthermore, Quin *et al.* (2005) identified four success factors for KM in the public sector in Malaysia – organisation profile, KM approach and practice, KM driver and technology resources. Research focusing on local authorities in the context of KM has identified organisational readiness and human resources as two key factors in KM in electronic government (Salleh *et al.*, 2009). While a study conducted in a public sector accounting organisation by Chong *et al.* (2011) listed eleven enablers to KM performance, which they categorise into three main factors – employee learning, ICT infrastructure and KM technologies, and leadership support.

The factors that critically impact on the effective sharing of knowledge for this research were derived from a thorough review of the literature pertinent to the context of LAM. The list comprises nine (9) factors – support from leaders in promoting the sharing of knowledge, clear policy or strategies, using IT to facilitate sharing of knowledge, organisational infrastructure, knowledge-friendly culture, motivation and reward system, training and education, and proper budgeting and allocation of resources. Details of the success factors for effective knowledge sharing will be discussed below.

6.7.1 Support from leaders

Support from leaders plays a key role in ensuring success in almost any initiative within an organisation. While leaders are responsible for practicing strategic planning in making the best use of resources and fostering knowledge sharing and a learning culture, employees look for qualities in their leader, such as fairness, competence and decisiveness. Hiebeler (1996) suggested that there are too few role models who exhibit the desired behaviour to foster the sharing of knowledge in an organisation. However, Devenport *et al.* (1998) argued that senior

management support was crucial for almost every knowledge management programme and listed the type of support that is acknowledged as critical to the organisational success of the organisation including providing funding and other resources and clarifying what type of knowledge is most important.

6.7.2 Clear policy / strategies

The importance of implementing effective knowledge sharing emanates from top management or from a clear policy or strategies. According to Liebowitz (2004), KM strategies should be used to complement other strategy initiatives. However, employees also need a clear and compelling reason to embrace such change (Kotter, 1996) and to convince them that knowledge sharing is necessary and important to the benefit of the organisation. In an empirical study conducted by Syed-Ikhsan and Rowland (2004) on a public organisation in Malaysia, it was found that, currently, the Minister does not have any specific KM strategy. Consequently, it is very difficult to adopt a KM strategy in the organisation because it seems that this is cumbersome work that they have to face. Therefore, the organisation should identify key organisational needs and issues, and provide a framework for addressing policy and strategies (Robertson, 2004).

6.7.3 Using IT to facilitate sharing of knowledge

Information technology is acknowledged as an enabler to the process of knowledge management and knowledge sharing. Use of information technology helps an organisation to manage and leverage its knowledge systematically and actively (Storck & Hill, 2000). Alavi and Leidner (2001) noted that IT-based systems develop support and enhance the organisational process of knowledge. Consequently, using IT effectively can result in the right system or a better way of building and delivering the right information to the right people at the right time.

As technology development becomes more advanced it affects the management's decisions regarding what to support in their knowledge sharing initiatives. According to Mannasco

(1996), the critical role for information technology lies in its ability to support communication, collaboration and searching for knowledge and information, not static repositories of best practice. Davenport and Prusak (1998) support the perspective of determining the knowledge infrastructure with the view that, 'Everybody expects technology to be a silver bullet-it isn't. You cannot ignore technology, but we must remember it is only an enabler. The real value is in linking people together, not in the technology itself'. It is important to note that although IT is not dependent on physical assets, it is highly dependent on the intellectual capital of the organisation. Hence, employees can increase their sharing of knowledge throughout the organisation.

The use of IT support has been shown to promote or impede knowledge sharing. In some instances the confidential status of a document limits the information that could be shared across teams and among team members in the LAM. King *et al.* (2002) defined four factors for the success of KM on IT infrastructure:

- Knowledge repositories – allow the storage and retrieval of knowledge
- Best practices and lessons learned
- Expert network
- Communities of practices

According to Keyes (2008), factors, such as lack of time and the inability to organise the vast information store properly, inhibit the effective sharing of knowledge.

6.7.4 Organisational infrastructure

It is important for organisations to build and maintain capabilities to manage complementary internal and external resources. Organisational infrastructure is one of the key factors to the success of effective sharing of knowledge in the organisations. Organisational infrastructure is the process of establishing a set of roles and organisational groups to perform knowledge-related tasks (Devanport *et al.*, 1998). Networking, communities of practice, training programmes and interactive participation of employees are important mechanisms for sharing and transferring, especially in the context of tacit knowledge. The skill and competences of knowledge workers need to continuously develop in order to produce a valuable contribution

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to the organisation. Therefore, human resources should play a vital role in the approach to encourage, consider and promote these mechanisms.

Table 6.9: List of CSF's related to organisational infrastructure

Researcher	Organisational Infrastructure
Egbu (2004)	Team relationship, network, face-to-face meeting, brainstorming sessions, apprenticeship, job rotation mentoring, CoP and quality circles.
Wong (2005)	Team development
Wong and Aspinwall (2005)	Training and education, KM Role
Du Plessis (2007)	Knowledge repositories

Environments where knowledge sharing is encouraged need extensive behavioural, cultural and organisational change (Davenport and Prusak, 1998). Davenport *et al.* (1998) define knowledge-friendly culture as the most important factor for a successful KM project. They also listed three components with regard to knowledge – a positive orientation to knowledge, not inhibited in sharing knowledge and KM project must fit with the existing culture. According to Larson (1999), to create a knowledge friendly culture, it is important to consider the cultural environment of an organisation before implementing knowledge management. In addition, trust and trustworthiness in the work environment (Allee 2001) and an environment for enabling employees to feel free to share knowledge and learn from failure and mistakes (Davenport & Prusak, 2000), commitment and develop the quality of relationship are also important (Weiss, 1999).

6.7.5 Motivation

Motivation, as defined by Robbins (1997), is the “willingness to exert high levels of effort toward organisational goals, conditioned by the effort's ability to satisfy some individual need”. Several authors (Davenport *et al.*, 1998; Liebowitz, 1999; Yahya and Goh, 2002) identified that significant motivational aid to create, share and use knowledge is an intangible success factor for all KM initiatives. Davenport *et al.* (1998) added, “Motivational approaches to encourage behaviour should be long-term and should tie in with the general evaluation and compensation structure”. Some authors argue that human behaviour could be

affected by cultural variants (Hofstede, 1984; Trompenaars, 1993). At the individual level, the willingness of employees to share, use and offer their knowledge freely is crucial for the effective sharing of knowledge in an organisation.

6.7.6 Reward system

In addition, a reward system or incentive policies have an effect on the organisational culture (O'Dell and Grayson, 1998). Such incentives may be needed to provide encouragement, such as greater job security and career development. Cong and Pandaya (2003) defined four formal rewards for knowledge sharing in the public sector, acknowledging the contributor by linking to annual performance evaluation, special recognition as a role model, celebrating success stories, making knowledge sharing a job requirement and hiring people with an ability to share knowledge. According to Khaliq (2001), reward systems, such as 'paid leave' are more effective in the context of Malaysian culture.

6.7.7 Training and education

Training is one of the most significant vehicles for transformation and change. It is an essential element of the development process for organisations. According to KPMG Consulting, (2000) training programmes create awareness and provide better understanding of the concept of KM. The main objectives of training are to promote knowledge, skill development and vision among employees in the organisation. Salleh & Goh (2002) argued that providing training on leadership, organisation change, organisation mission and values are equally important for knowledge-based organisations.

In the context of on the job learning, training can be divided into four types: introductory, adaptation, promotion and project training (Benninger, 1987). Noe (2005) emphasised the impact of knowledge sharing in a training and development context as a mechanism to meet organisational challenges and provide a competitive advantage. He also added that employees are expected to acquire new skills and knowledge in training, apply them on the job and share them with fellow workers. However, sharing of knowledge in the workplace will only occur when employees have both the ability and motivation to acquire and apply new skills.

6.7.8 Proper budget and allocation of resources

Resources are required for the success of knowledge sharing initiatives; these resources include financial support, employees and time. Investment in technology requires considerable financial support including development of infrastructure and its system; therefore, human resources are needed to coordinate and manage the implementation process as well as to take up the knowledge related role (Wong, 2005).

Time also has to be considered, as organisations have to create free time for their employees to perform KS activities. Mastensson (2000) described the importance of providing enough time and opportunities for people to learn. Other issues relate to the employees such as competencies of the employees, coordination among employees (Ajmal *et al.*, 2010) and training of employees (Choy and Suk, 2005).

6.8 Analysis of qualitative data in CSF for effective knowledge sharing in local authorities

The interview findings revealed some factors that impact on effective knowledge sharing in local authorities. The factors have been identified in the table below:

Table 6.10: Results from interviewees regarding CSF for effective knowledge sharing

Code	CSF Variables	Frequency	Rank
See table	KM Strategy	20	1
HDPC 1,POC 1, HDOC1	Leaders support Organisational Culture Training	14	2
HDPM 1, HDPM 2 ,POM1,			
HDOM 1, HDOM ,2 HDOM 3, HDPM 1, HDOD 1, HDOD 2,HDOD 3, HDOD 4			
POM 1	Resources – Manpower and Financial budget	8	3
HDPD1,HDOM2,HDOD3,HDOD4,HDOD5,HDOM6,HDOM7			
HDPD1,HDOM2,HDOD3,HDOD4,HDOD5,HDOM6,HDOM7	Technology	7	4

6.8.1 KM strategy

Most of the interviewees explained that the planning permission process did not possess clear strategies or proper strategies for the sharing of knowledge and that there was a lack of updating information and knowledge. The mainstream in the planning permission process normally refers to previous files or records, ISO documents, planning permission guidelines and meetings between technical departments (TNB, Telekom, IWK, etc.) and departments within a local authority.

The interviewee of HDPC 1 said that, *“There are difficulties in finding and searching records for the last project or application.....too many files to refer to”*

The interviewee of HDPM 2 said that, *“Most of the information in the computer is not updated..... especially in our planning approval system.....”*

The interviewees also said that the organisation organises two types of meeting for the planning permission process – One-stop Centre committee meeting (*Mesyuarat Jawatankuasa Pusat Setempat*), which is conducted twice a month, and local authority council meeting (*Mesyuarat Majlis Penuh PBT*), which uses manuals and guidelines for planning approval and ISO documentation. However, applying this strategy was seen as a knowledge sharing tool (technologies) and technique albeit not enough to build a system for capturing and transferring internal knowledge. This is because although the strategy deals with human resources in order to share explicit and tacit knowledge, the knowledge is not stored in IT as explicit knowledge and not updated, especially when getting comments and feedback from technical departments regarding the planning permission process. Consequently, it misses the competitive advantage, reduces the improvement in their activities and makes decision-making inaccurate.

6.8.2 Leaders support

As discussed in sections 6.2.5 and 6.7.1, in LAM it is important to have commitment from the leader and the leadership style, which helps to maximise efficiency and to achieve organisational goals. According to Saint-Onge and Armstrong (2004), “leadership mobilises and determines the quality and rate of knowledge flow, providing a catalyst for staff to exercise their responsibilities, encourage self-initiation, trust, interdependence and partnering across an organisation”. According to the research conducted by Wong and Aspinwall (2005), leaders should promote knowledge sharing across the organisation.

The interviewee of POC 1 said that, *“if we do something wrong, sometimes we get reprimanded by our leaders. This is because lessons learned from mistakes are not captured and shared in a systematic way”*.

The interviewee of HDPM 1 said that, *“...without the top management support, even the most successful products are scrapped in a matter of weeks/months....”*

This shows how important the commitment from leaders is to ensure the success of the effectiveness of knowledge sharing in LAM. Effective leadership is a personal role that requires the blending of motivational, strategic and management skills to align focus, energy and drive whilst creating a culture that encourages individual thinking and sharing of knowledge with others. Ultimately, leadership is about pushing ideas and thoughts forward, shouldering responsibility and unlocking hidden drivers and aspirations to bring out the confidence of others.

6.8.3 Organisational culture

Organisational culture (detailed in section 5.7) and leadership are elements in LAM that work in conjunction with one another towards organisational success. Both culture and leadership influence how the LAM will function and what will be achieved. Either culture will determine how leadership functions, or leadership will transform the organisational culture so that the culture supports the organisation. As mentioned earlier, the Malaysian culture, especially that of the Malays, shows more respect to their leaders and elders.

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The interviewee of POM1 said that, *“It is very difficult to change aging staffmost of them are in comfort zone...”*

The above finding shows that 14/20 (70%) of the overall interviewees tended to agree that organisational culture is crucial for the success of knowledge sharing initiatives in LAM.

The interviewee of HDPC 1 said that, *“Even though we have a good working environment, such as working space, open office layout, technologies.... the main point is the core values of the organisation, such as teamwork, honesty, professionalism and recognition”*.

6.8.4 Training

If LAM are to survive and prosper in the modern world of rapid change, they need to be more flexible, faster-moving and faster-learning than before. Their ability to do this rests upon the abilities of their workforce to have these characteristics, hence, the value of training. If individuals are able to learn, develop and change, then so can the organisations. Providing training for employees not only helps them develop their skills and knowledge, but it is also motivational and a building block to organisational success.

From the findings:

The interviewee of HDPM 2 said that, *“MHLA and our organisation provide a number of training programmes related to planning, staff development and quality.....it enables staff to capture and share knowledge with others effectively”*.

The interviewee of POC 1 said that, *“..... There is no proper training related to knowledge management or knowledge sharing”*.

KPMG Consulting (2000) identified the importance of organisations including any KM programme in their training programme. This shows that if the employees do not understand and are not supporting the KM programme it is difficult for the organisation to succeed. The Management and Human Resources Departments in LAM have to consider that training needs to be for the right staff, it needs to be the right type of training and it needs to be at the right time.

6.8.5 Resource- manpower and financial budget

Resources – manpower, financial budget and time – are the core of any organisation.

In the context of the Malaysian government, there is a need for a civil service that can deliver the new and expanded services more effectively and efficiently. However, government policy is for local authorities to work towards financial independence and reduce their dependence on the State and Federal government. The following empirical evidence is presented in support of the effect of resources on district authorities, i.e., lack of employment, limitations of financial budget and working overload.

The interviewee of HDPD1 said that, *“Our department has a shortage of staff.....sometimes I and my technician have to do clerical work for the planning permission process”*.

The interviewee of HDOD4 said that, *“Since we are in a district councilwe have a limitation of budgetor financial...difficult forus to create any development programme for the staff”*.

The interviewee of POC 1 said that, *“Even though we have a filing system, such as ISO document and filing system for the previous application...we still have difficulties to retrieve..... and it is difficult for us to get lessons learned from the previous project.”*

Given the above discussions, there are four factors that are critical for the effective knowledge sharing in local authorities. Taking all the above into consideration, it can be recognised that the critical success factorsfor effective knowledge sharing in local authorities with respect to the planning permission process are:

1. Knowledge Management Strategy
2. Leadership support and commitment
3. Organisational culture – difficult to change employees attitude
4. Training and education

6.9 Analysis of quantitative data in CSF's for effective knowledge sharing in local authorities

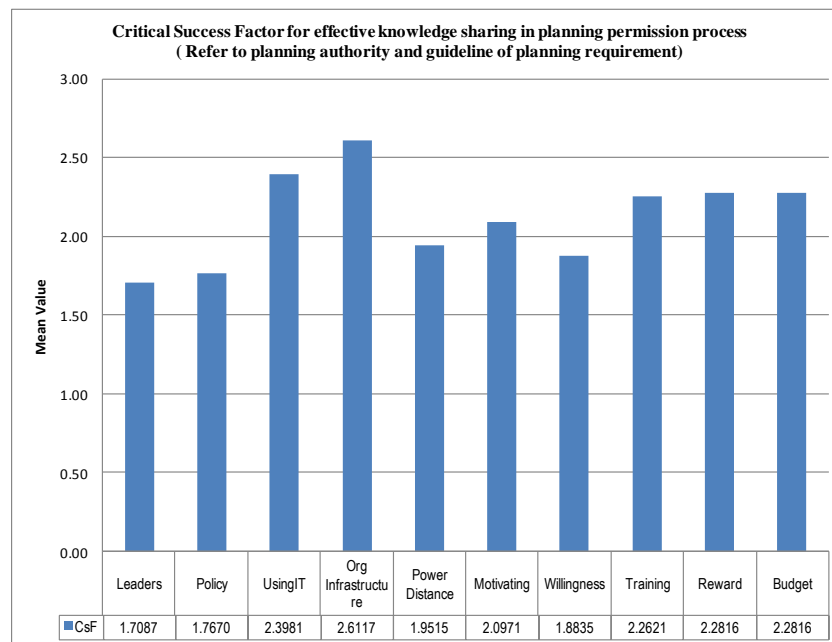


Figure 6-1: Critical success factors for effective knowledge sharing in the planning permission process (refer to planning authority and guideline of planning requirements)

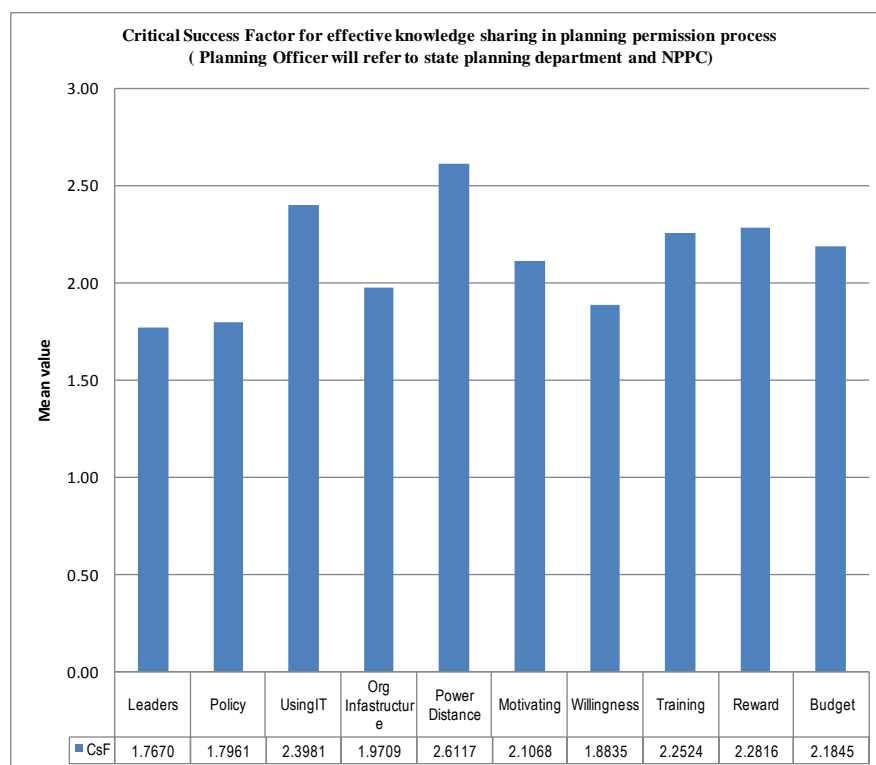


Figure 6-2: Critical success factors for effective knowledge sharing in the planning permission process (Planning officer will refer to State Planning Department and NPPC)

Figures 6.1 and 6.2 show the critical success factors that were constructed from the literature and modified after interviews with the respondents (Heads of Planning department, Heads of OSC and Planning Officer). From the list, which comprised ten (10) factors, respondents were asked to identify those factors that they found have a critical impact on the effective knowledge sharing in local authorities with respect to the planning permission process. Effective refers “to successful or achieving the results that you want” (Cambridge Online Dictionary). Therefore, for this research, the meaning of effective is successful or achieving the results of knowledge sharing in local authorities. These categories were coded 1, 2, 3, and 4, respectively (see questionnaire appendix 3). The average scores were then computed from the ordinal coding of these data. As the mean score increases, the degree of impact factor decreases.

From figures 6.1, it is evident that respondents ranked the critical success factor in effective knowledge sharing as: leaders actions, as most critical factor for effective knowledge sharing, followed by policy, willingness of employees to work with others, organisation’s information and authority flow based on power distance (dependence of subordinates on boss), motivating employees to participate and proper budget. These were followed by training and reward. Using IT to facilitate sharing of knowledge and organisational infrastructure were ranked lowest in terms of their mean values.

In the context of Planning officer will refer to State Planning Department and NPPC (National Physical Planning Council), figure 6.2: leaders, policy, willingness of employees to work with others, organisational infrastructure, motivating employees to participate and proper budget. These were followed by training and reward. Using IT to facilitate sharing of knowledge and organisation’s information and authority flow based on power distance (dependence of subordinates on boss), were ranked lowest in terms of their mean values.

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Table 6.11: Critical success factors for effective knowledge sharing in the planning permission process (refer to planning authority and guideline of planning requirements) according to type of local authority

a) Refer to planning authority and guideline of planning requirement

Critical Success Factors	City	Rank	Municipal	Rank	District	Rank	Overall	Rank
Leaders	1.7500	2	1.7843	1	1.5000	2	1.7087	1
Policy	1.6071	1	1.9412	4	1.5833	3	1.7670	2
Willingness	1.7857	3	1.9216	2	1.9167	8	1.8835	3
PowerDistance	2.1429	4	1.9216	3	1.7917	6	1.9515	4
Motivating	2.2500	5	2.1569	5	1.7917	7	2.0971	5
Training	2.2857	6	2.3333	7	2.0833	9	2.2621	6
Reward	2.6429	8	2.3529	8	1.7083	4	2.2816	7
Budget	2.6786	9	2.2549	6	1.4583	1	2.2816	8
UsingIT	2.5000	7	2.6667	10	1.7083	5	2.3981	9
Org Infrastructure	2.8929	10	2.4118	9	2.7083	10	2.6117	10

Meaning of scale: 1 (A Very Critical Factor), 2 (Critical Factor), 3 (Fairly Critical Factor), 4(Not A Critical Factor)

Table 6.12: Critical success factors for effective knowledge sharing in the planning permission process (Planning officer will refer to State Planning Department and NPPC) according to type of local authority

b) Planning officer will refer to : State planning dept and NPPC

Critical Success Factors	City	Rank	Municipal	Rank	District	Rank	Overall	Rank
Leaders	1.9643	3	1.8235	1	1.4167	1	1.7670	1
Policy	1.7143	1	1.9020	2	1.6667	3	1.7961	2
Willingness	1.8214	2	1.9020	3	1.9167	8	1.8835	3
Org Infrastructure	2.1786	4	1.9216	4	1.8333	6	1.9709	4
Motivating	2.2500	5	2.1569	5	1.8333	7	2.1068	5
Budget	2.6786	9	2.2549	6	1.4583	2	2.1845	6
Training	2.2500	6	2.3333	7	2.0833	9	2.2524	7
Reward	2.6429	8	2.3529	8	1.7083	5	2.2816	8
Using IT	2.5000	7	2.6667	10	1.7083	4	2.3981	9
PowerDistance	2.8929	10	2.4118	9	2.7083	10	2.6117	10

Meaning of scale: 1 (A Very Critical Factor), 2 (Critical Factor), 3 (Fairly Critical Factor), 4(Not A Critical Factor)

From Table 6.11, at the aggregate level, it is evident that respondents from planning permission process (refer to planning authority and guideline of planning requirements) ranked the critical success factors in effective knowledge sharing as: leaders actions, as the most critical factor for effective knowledge sharing, followed by policy, willingness of employees to work with others, organisation's information and authority flow based on power distance (dependence of subordinates on boss), motivating employees to participate and proper budget. These were followed by training and reward. Using IT to facilitate sharing of knowledge and organisational infrastructure were ranked lowest in terms of their mean values.

In the context of Planning officer will refer to State Planning Department and NPPC (National Physical Planning Council), Table 6.12: leaders, policy, willingness of employees to work with others, organisational infrastructure, motivating employees to participate and proper budget. These were followed by training and reward. Using IT to facilitate sharing of knowledge and organisation's information and authority flow based on power distance (dependence of subordinates on boss), were ranked lowest in terms of their mean values.

The inference that can be drawn from these tables (Table 6.11 and 6.12) is that leader is the important person as a critical factor for the success of effective knowledge sharing in the LAM. The implication from this result is that the significance of leadership for the success of effective KS cannot be disputed among the local authorities. This is parallel with Civi (2000), who mentioned that the involvement of leader in KM activities is very important; otherwise the success of KM is cumbersome. It is recommended that LAM have to create good leaders and accomplish a strong relationship between the leaders and employees along with stating the importance of knowledge sharing for the success of the organisation as a whole.

At the disaggregate level (Table 6.11), for both types, in city authorities, clear policy/strategy regarding the sharing of knowledge is the highest ranked. In municipal authorities, leader is the highest ranked as a critical success factor for effective knowledge sharing. District authorities (planning authority and guideline of planning requirements), budget is the highest ranked as a critical success factor for effective knowledge sharing. However, for district authorities (State Planning Department and NPPC), leader is the highest ranked as a critical factor for effective knowledge sharing.

The inference that can be drawn (Table 6.11 and 6.12) is that for the bigger size organisations, policy/strategy is the critical success factor whilst for small size organisations, leader and budget are the critical success factors for effective knowledge sharing within local authorities. The implication from this result is that proper policy and strategy, leadership and budget are very critical factors for LAM to be successful because it can identify the key needs and issues within the organisation and provide a framework for addressing issues in knowledge sharing, as clearly mentioned in Section 6.2.6. In addition these factors also have the ability to align KS behaviours, identify opportunities, promote the value of KM, communicate the best strategies and facilitate the evolution of learning organisations. It is recommended that LAM have to consult among themselves and establish the issues to make

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sure that these critical factors will be improved otherwise their vision and mission will not be achieved.

Taking all the above into consideration, and even though there were some slight deviations, overall, the following can be recognised as the critical success factors for effective knowledge sharing in local authorities with respect to the planning permission process:

- Support from leaders in promoting the sharing of knowledge
- Clear policy/strategies regarding the sharing of knowledge
- Willingness of employees to work with others and share knowledge to their mutual benefit
- Organisation's information and authority flow based on power distance affects sharing of knowledge within the organisation
- Organisational infrastructure
- Motivation
- Budget

It is now important to determine whether the type of local authority has an impact on the results discussed above. The test of the null hypothesis was used to investigate this.

Null hypothesis H0 – The critical success factors that impact on effective knowledge sharing in local authorities do not differ according to the various sizes with respect to the planning permission process

This was further examined using the Kruskal-Wallis test. The results are given in tables 6.13 and 6.14

Table 6.13: Kruskal-Wallis Test Statistics for CSF's for effective knowledge sharing in the planning permission process (Refer to planning authority and guideline of planning requirements)

	Leaders	Policy	UsingIT	Org Infrastruct ure	PowerDist ance	Motivating	Willingnes s	Training	Reward	Budget
Chi-Square	2.590	4.089	28.043	6.426	4.179	6.172	.748	1.985	20.376	27.820
df	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.274	.129	.000	.040	.124	.046	.688	.371	.000	.000
* result (Bold) are statistically significant at $p < 0.05$										

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Table 6.14: Kruskal-Wallis Test Statistics for CSF's for effective knowledge sharing in the planning permission process (Planning officer will refer to State Planning Department and NPPC)

	Leaders	Policy	UsingIT	Org Infrastruct ure	PowerDist ance	Motivating	Willingnes s	Training	Reward	Budget
Chi-Square	6.020	1.642	28.043	4.203	6.426	4.880	.354	1.893	20.376	27.820
df	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.049	.440	.000	.122	.040	.087	.838	.388	.000	.000
* result (Bold) are statistically significant at $p < 0.05$										

The Kruskal-Wallis statistic measures how much the group ranks differ from the average rank of all groups. Thus, according to Tables 6.13 and 6.14, at the 5% level of significance, in most instances, the results suggest that the critical success factors have an impact on the effective knowledge sharing in the planning permission process ('Refer to planning authority and guideline of planning requirements' and 'Planning officer will refer to State Planning Dept. and NPPC'). Therefore the null hypothesis is rejected.

6.10 Summary

This chapter addressed part of the fifth objective.

According to the qualitative data finding, four factors are the main challenges for effective knowledge sharing in local authorities with respect to the planning permission process. These are:

1. Challenges of using IT application
2. Encourage KS and supportive culture
3. Management support and leadership
4. Hierarchical and bureaucratic organisational structure

Similarly, from the quantitative findings four factors were revealed as the main challenges for effective knowledge sharing:

1. Leadership commitment in promoting KS
2. Exploiting employees' skills where they are willing to share
3. Using IT application
4. Relationship between co-worker and leaders

For the critical success factors for the effective knowledge sharing, from the qualitative data findings, these are

1. Knowledge Management Strategy
2. Leadership support and commitment
3. Organisational culture – difficult to change employees attitude
4. Training and education

And the quantitative finding revealed the highest four factors are:

1. Support from leaders in promoting the sharing of knowledge
2. Clear policy/strategies regarding the sharing of knowledge
3. Willingness of employees to work with others and share knowledge to their mutual benefit

4. Organisation's information and authority flow based on power distance affects sharing of knowledge within the organisation

Considering what has been discussed above, the following inferences and implications can be made:

1. Irrespective of the type of local authority, every attempt should be made to introduce a clear organisational goal. Moreover, the function of human resource management should be strengthened by encouraging staff members to assume ownership of knowledge sharing efforts, be involved with the development and quality control of the knowledge base, and to ensure that knowledge sharing enhances organisational objectives, incentives should be put in place to encourage knowledge creation and sharing.
2. Developing a new or modified organisational structure is a complicated issue, especially in the context of LAM. They have their own hierarchical and bureaucratic structure, however, effective human resources management policies by attracting and keeping people with ability, behaviour and competencies that add value to the LAM knowledge stock must be targeted. Top management or the President of the local authority have to encourage the human resources to be active in the knowledge sharing process and coordinate the relationships between the function of human resources and knowledge sharing.
3. Effectiveness of knowledge sharing in the organisation is associated with different dimensions of leadership and commitment. Leadership is also an important function of management, which helps to achieve organisational goals and mission. Therefore, the following points justify the importance of leadership as being proactive in the process of knowledge sharing through:
 - a. Initiates action – communicates or discusses the policies and plans with the subordinates
 - b. Commitment and motivation – guiding role for the subordinate (instructing the subordinates in the way they have to share knowledge and provide them with benefits)
 - c. Develop and building morale – morale denotes willing cooperation of the employees towards their work, gaining their confidence and winning their trust.

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- d. Coordination – coordination can be achieved through reconciling personal interests with organisational goals.

CHAPTER 7. ORGANISATIONAL RESOURCE IMPLICATIONS OF EFFECTIVE KNOWLEDGE SHARING

7.1 Introduction

This chapter reports the findings and discusses the implications of organisational resources on effective knowledge sharing. These findings are elaborated upon using the questionnaire survey. Many factors are established that have a respective impact on the effective sharing of knowledge. Throughout, the chapter reflects on the findings in order to fulfil the research objective:

To appraise the organisational resource implications of effective knowledge sharing in local authorities with respect to the role they play in contributing to the planning permission process

7.2 Organisational resources in Local authorities in Malaysia

There is recognition in the organisation about the importance of knowledge as a critical resource for organisations (Nonaka, 1991; Drucker, 1993; Gartner, 1998). Conventionally, the organisational resources have not been treated with a systematic purpose. However, according to Ernst and Young (1997b), in the twenty-first century, organisational resources have to be managed properly to become successful. Some practitioners and researchers believe that organisational resources matter more than the conventionally tended resources and must be managed explicitly (Stewart, 1998).

According to Daft (1983), organisational resources include all assets, capabilities, organisational processes, firm attributes, information, and knowledge, etc., controlled by the organisation that enable the organisation to conceive of and implement strategies that improve efficiency and effectiveness.

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There are three categories of organisational resources: physical capital resources (Williamson, 1975 in Barney, 1991), Human capital resources (Becker, 1964 in Barney, 1991), and organisational capital resources (Tomer, 1987 in Barney, 1991). However several authors (Holsapple and Joshi, 2000; Wong, 2005; Al-Mabrouk, 2006) identified significant resources that are required for successful knowledge sharing implementation as financial support, human resources and time.

A limitation of financial resources will cause a reduction of knowledge activities (Holsapple and Joshi, 2000). The availability of financial resources may affect the execution of leadership, coordination, control, and measurement (Holsapple and Joshi, 2000). Human resources are needed to coordinate and manage the implementation process as well as to take-up knowledge-related roles (Wong, 2005). Since time is also required when knowledge sharing is implemented, organisations need to free up time for their employees to perform KM activities, such as knowledge sharing (Wong, 2005). Knowledge resources strongly influence KM in an organisation. Understandably, as the raw materials for knowledge activities, the knowledge resources in an organisation influence its knowledge sharing and the resultant learning, projection and innovation (Holsapple and Joshi, 2000).

The organisational resources in local authorities in Malaysia (LAM) for this research are derived from the literature and modified after interviews with the respondents. From the lists, there are thirteen (13) organisational resources, which are:

7.2.1 Clear rules and procedures

As mentioned earlier in section 5.4.2, formalisation often entails less variable behaviour by organisational members, and, thus, can result in lower variability in outcomes. Formalisation can also make it easier to train new members of an organisation faster and transmit expectations about work behaviour more effectively (Tolbert and Hall (2009).

Furthermore, they added that formalisation also has negative consequences for organisations. Formalisation may prevent members from responding to problems in an effective way. Another drawback is that formalisation tends to reduce innovation (Hage and Aiken (1967a) and also prevent employees from experimenting with better ways to accomplish their work (Tolbert and Hall, 2009).

7.2.2 Employees' skill and competencies

Skill and competencies are very important in Local Authorities. Therefore, the aim of training is to change behaviour at the workplace in order to stimulate efficiency and higher performance standards (Cowling and Mailer, 1990). Training will certify the systematic development of the attitude, knowledge and skill behaviour pattern required by an employee in order to perform a given task adequately. Training programmes yield many direct benefits, such as enhanced problem-solving skills, a more competent and efficient workforce, fewer recruiting problems in obtaining qualified employees and fewer problems with employee relations (Olomolaiye, 2007).

7.2.3 Leaders' commitment

Another aspect for successful local authorities in knowledge sharing is leaders' commitment (refer section 6.2.5 leadership and 6.7.1 support from leaders). For successful knowledge sharing implementation, the visible leadership and commitment of top management must be sustained throughout the knowledge sharing effort.

Leaders spend most of their time in developing organisational strategy, and therefore, their personal goals and values are very important in establishing the significance of KSI. Leadership commitment conveys broad issues of strategy and how the organisation defines its business and uses its knowledge assets to reinforce its competencies (Jager, 1999 in Sangahani, 2009).

7.2.4 Top management's decision making

This discussion is similar to leaders' commitment. However, top management's decision making concerns the decisions that are made and that will impact positively or negatively on the whole organisation. In LAM, most of the decisions are made by the top management; however, in certain circumstances decisions are made through formal meetings (OSC meeting and local authority) for the planning permission process. According to Tsai (2002), centralisation refers to the locus of decision-making authority

lying in the higher level of a hierarchy, whereas decentralisation is preferred for improving knowledge sharing within the organisation. Fostering learning and sharing of good practices involves cultivating an environment where employees can exchange knowledge freely, and where structures are flexible and decentralised (Olomolaiye, 2007).

7.2.5 Education and training

In order to create awareness and to have a better understanding of the concept of KM, organisational members in LAM need to be given training and education in this area (refer section 6.7.7 training and education). Such training helps to frame a common language and perception of how staff members define and think about knowledge (Wong, 2005). According to Carneiro (2001), the importance of education and training is well recognised, especially for those agents concerned with preserving intellectual capital. Cohen and Backer (1999) claimed that the process of successful knowledge creation will be impossible without appropriate training procedures.

7.2.6 Relationship between co-workers and leaders

The role of top management is to create a favourable climate for knowledge creation and to manage knowledge emergence (Binney, 2001). Leaders are important in acting as role models to show the desired behaviour for knowledge sharing. Trust, openness, motivation and time pressure are the factors that influence the knowledge sharing process (Fong, 2005 in Anumba *et al.*, 2005), and will encourage the relationship between co-workers and leaders.

7.2.7 Motivating teamwork participation

Teamwork is one of the most common prescriptions for coping with change. It certainly appears to be the case that employees prefer to work in groups and teams rather than on

a purely individual basis. According to Nadkarni (1995), the management must encourage the organisational members to work together and build on each other's ideas and strengths. As an environment in LAM, the focus of business, dealing with citizens and knowledge sharing implementation means providing an environment for knowledge workers of various disciplines who can be together, and, thus, create new knowledge (Binney, 2001). In fact organisations with team-oriented employees who trust each other are more successful at knowledge sharing compared to those who are merely technologically superior (Geraint, 1998).

7.2.8 Giving special recognition

According to Crause O'Brien (1995), recognition is important for the knowledge worker because of the willingness of employees to convert the tacit knowledge of the work process into a continuous process of improvement and innovation. Bukowitz and Williams (2000) suggested giving points to employees as a means of recognition when they share, and that employees with good ideas be given priority in employee development and promotional opportunities.

7.2.9 Implement conducive environment

Cook and Yanow (1993) mentioned that organisations are essentially cultural entities. Culture is the shared values, beliefs and practices of the people in the organisation (Schein, 1985). Therefore irrespective of what an organisation does to manage knowledge, the influences of the organisation's culture are much stronger (McDermott and O'Dell, 2001). Within organisations, there are also subcultures that are characterised by a distinct set of values, norms and practices, often resulting in their members valuing knowledge differently from other groups within the same organisation (Pentland, 1995). Subcultures and their influence on knowledge sharing add even more complexity to determining those practices and norms that create the right conducive environment to facilitate the sharing of knowledge.

7.2.10 Information and authority flow based on power distance

Power distance is the dependence of subordinates on the boss's decision. This situation is the same as centralisation whereby the degree to which decision making responsibility and power in an organisation are closely held by a few people or widely distributed among different organisational members (Tolbert and Hall, 2009). However, in implementation of knowledge sharing, decentralisation is preferred.

7.2.11 Build trust

It is important that LAM attempt to reduce confrontational practices in order to build trust among the workers in the organisation. According to Ghoshal and Bartlett (1994), trust is one of four primary dimensions in organisations that influence the actions of individuals. Huemer *et al.* (1998) further argued that even though the distribution of power matters in organisations, trust is more important as trust facilitates learning, and decisions to exchange knowledge under certain conditions are based on trust.

7.2.12 Using IT application

According to Lee and Hong (2002), and Alavi and Leidner (2001) IT can play a variety of roles to support an organisation's KM processes. IT can enable a rapid search, access and retrieval of information, and can support collaboration and communication between organisational members.

According to Luan and Serban (2002), IT can be grouped into one or more of the following categories: business intelligence, customer relationship management, data mining, work-flow, search, e-learning, knowledge base, collaboration, content and document management and portals.

7.2.13 Proper budget and employees' allocation

A proper financial budget is important to establish significant KSI. According to Ozigi (1997), a budget is the expected total revenue and expenditure for each year based on the estimates of the income accruing to the units in an organisation. For LAM, most of their revenue comes from the tax and assessment rate (refer section 2.3.2 and table 2.1) and financial provision from MHLG. The Malaysian public sector does not have any proper strategy in KM, especially in the context of financial budget (Syed Ikhsan and Rowland, 2004). Goodluck (2011) listed five features for a good budget plan for KM:

- a financial plan, which contains programmes and projects for managing knowledge in an organisation
- a fixed period, which is usually one year
- both estimated incomes and expenditure of KM personal, materials and equipment
- an authority that collects and incurs expenditure once it is approved
- Inclusion of all the financial activities around knowledge management in the given organisation.

Moreover, he added a typical budget process for KM, which includes:

- design of budget guideline
- issuing of call circular
- submission and defence of proposals by the knowledge management unit before the organisations' management
- budget approval
- budget implementation
- budget monitoring and evaluation

In addition, proper employees' allocations are also crucial for effective KSI. According to Davenport and Volpel (2001), '*managing people is managing knowledge: managing knowledge is managing people*'. Therefore, Robertson and Hammersley (2000) emphasized the significance of recruitment to focus on the ability

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of candidates to fit into the organisational culture or distinctive way of working rather than just matching them to a job specification.

7.3 Analysis of quantitative data for the organisational resource implications of effective KS in local authorities

It is a known fact that organisational resources are vital to any organisation. Effective knowledge sharing relies heavily on the resources in the organisation. The importance of organisational resources has been argued extensively by Jennex and Olfman (2005) who provided a listing of eight KMS success factors. Jennex and Olfman (2003) were concerned with promoting KS, which involves the use of resources, i.e., human, material, financial and knowledge. Massey *et al.* (2002) considered the involvement of people, while Holsapple and Joshi (2000) argued that the success of the KM system depends on the management, resources and environmental influence. Tables 7.1 and 7.2 show the organisational resource implications of effective KS in the planning permission process.

Table 7.1: The organisational resource implications of effective knowledge sharing in the planning permission process (refer to planning authority and guideline of planning requirements) according to type of local authority

a) Refer to planning authority and guideline of planning requirement								
Organisational Resource	Local Authorities							
	City	Rank	Municipal	Rank	District	Rank	Overall	Rank
Leaders Commitment	1.7500	2	1.6863	2	1.5833	2	1.6796	1
Employees skill	1.6786	1	1.8627	3	1.6667	3	1.7670	2
Relationship	1.9286	6	1.6275	1	2.0417	13	1.8058	3
Trust	1.7500	3	1.9216	4	1.7917	7	1.8447	4
Financial	2.0000	9	1.9608	5	1.7083	4	1.9126	5
Resources	1.7500	4	2.1569	10	1.5833	1	1.9126	6
Decision making	1.9643	7	2.1373	8	1.7083	5	1.9903	7
IT	2.0714	10	2.0784	6	1.7917	6	2.0097	8
Clear Rules	1.9643	8	2.1569	9	2.0000	11	2.0680	9
Power distance	2.1429	11	2.0784	7	1.9583	10	2.0680	10
Motivation	1.8929	5	2.2745	13	1.9167	9	2.0874	11
Recognition	2.3214	12	2.2157	11	2.0417	12	2.2039	12
Education	2.4643	13	2.2353	12	1.8750	8	2.2136	13
Environment	2.5714	14	2.4118	14	2.4167	14	2.4563	14
Meaning of scale: 1 (A Very Positive Impact), 2 (Positive Impact), 3 (A Fairly Positive Impact), 4 (No Positive Impact At All)								

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Table 7.2: The organisational resource implication of effective knowledge sharing in the planning permission process (planning officer will refer to State Planning Dept. and NPPC) according to type of local authority

b) Planning officer will refer to : State planning dept and NPPC								
Organisational Resource	Local Authorities							
	City	Rank	Municipal	Rank	District	Rank	Overall	Rank
Leaders Commitment	1.7500	2	1.6471	2	1.5833	1	1.6602	1
Employees skill	1.6429	1	1.8627	3	1.6667	5	1.7573	2
Relationship	1.9286	6	1.6275	1	1.9583	12	1.7864	3
Trust	1.7500	4	1.8824	4	1.7917	7	1.8252	4
Resources	1.7500	3	2.1176	8	1.5833	2	1.8932	5
Financial	2.0000	9	1.9608	5	1.6667	4	1.9029	6
Decision making	1.9643	7	2.1373	9	1.6250	3	1.9709	7
IT	2.0714	10	2.0784	7	1.6667	6	1.9806	8
Clear Rules	1.9643	8	2.1569	10	1.9167	10	2.0485	9
Power distance	2.1429	11	2.0784	6	1.9167	9	2.0583	10
Motivation	1.8929	5	2.2745	13	1.9167	11	2.0874	11
Recognition	2.3214	12	2.2157	11	2.0417	13	2.2039	12
Education	2.4643	13	2.2353	12	1.8750	8	2.2136	13
Environment	2.5714	14	2.4118	14	2.4167	14	2.4563	14
Meaning of scale: 1 (A Very Positive Impact), 2 (Positive Impact), 3 (A Fairly Positive Impact), 4 (No Positive Impact At All)								

In the questionnaire survey the subject of the organisational resource implications of effective knowledge sharing was raised. The following analysis reflects the perceptions of the individual in the planning permission process (Tables 7.1 and 7.2). From discussion at the aggregate level, it is evident that the most or very positive impacts for effective knowledge sharing are as follows – leadership commitment, employees’ skills and competencies, relationship between co-workers, build trust, financial budgets and employees. In the setting of LAM, leaders are a person who takes ownership of KSI. He or she is responsible for the setting of KSI, and, subsequently, establishes strategic priorities, facilitates a suitable culture and obtains commitment from senior managers to move the organisation in the direction of that vision (Davenport and Prusak, 1998). Obviously, without a proper leadership setting the pace, the KSI attempt may be in vain. Leadership is an important characteristic of the KS structure and culture, and, therefore, affects their adequacy.

The inference that can be drawn (Table 7.1 and 7.2) is that in the setting of LAM, a leader is a person who takes ownership of KSI. He or she is responsible for the setting of KSI, and, subsequently, establishes strategic priorities, facilitates a suitable culture and obtains commitment from senior managers to move the organisation in the direction of that vision. This is agreed by Davenport and Prusak (1998) who stated that a leader is an

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important person for the direction of the vision. The implication from this result is that a leader is an important player in the LAM. Without proper leadership setting the pace, the KSI attempt may be in vain. It is recommended that LAM leaders/managers have to have complete knowledge. This is because, according to Drucker (1994), knowledge has become the critical resource in wealth creation of society in the post-industrial era. In addition, all the employees of LAM must have the ability, skill and competencies to share knowledge because these are the preconditions of the success of knowledge sharing. Having a good leader without good supporting staff is of no benefit. LAM have to engage all staff in KM as this is crucial for generating and sharing knowledge.

Further, analysis was made at the disaggregate level. Although the data at the disaggregate level is slightly different in terms of ranking, most of the local authorities have chosen employees' skill and competencies, leaders commitment, relationship between co-workers and trust as having a positive impact on effective KS in the planning permission process. The inference that can be revealed (Table 7.1 and 7.2) is that other than employees' competency and commitment from manager, the role of trust cannot be over emphasised in LAM. It depends on the introduction of a proper trust building measure that LAM should enforce, especially in the planning permission process. The implication from this result is that building an environment that encourages trust among employees and promotes a culture of information and knowledge sharing will encourage employees to share their knowledge. In addition, the allocation of appropriate employees' and appropriate financial budgeting is perceived as having a very positive impact on district authorities. It is clear that KS has costs as well as benefits, including the investment required to rework documents and documentation, electronic documents and developing IT infrastructure. Because the cost of KS may sometimes outweigh the benefit, the allocation of appropriate employees and finances essentially helps, and, sometimes, cost effective knowledge is developed and then re-used by many employees, the connection between professionals (planning officers) are strengthened, solving problems and bringing people together and more sophisticated ideas, insights and information sources are applied to problems resulting in better solutions.

It is recommended that LAM have to manage their trust building between employees by developing interpersonal trust and also organisational trust. Also there should be a culture of trust between people before the staff of LAM can really start engaging themselves in developing, sharing and using knowledge. In addition there should be a culture of motivation, a sense of belonging, empowerment and respect for each other within an organisation as well.

Organisational resource implication

This is parallel that knowledge sharing requires a culture in which people are respected, based on the knowledge they have and the way they are putting it to use for the organisation (Microsoft, HP, Siemens, E&Y, Teltech, BusinessEdge Solutions in Akhavan *et al.*, 2006).

Taking the above into consideration, overall, the following can be recognised as the organisational resource implications of effective knowledge sharing in the two stages of the planning permission process:

1. Leaders' commitment
2. Employees skills and competencies
3. Relationship between co-workers
4. Trust
5. Allocation of appropriate employees
6. Allocation financial budgeting

Therefore, further investigation is required to determine whether the organisational resource implication of effective knowledge sharing is associated with the type of local authority. The test of null hypothesis was used to investigate this.

Null hypothesis H0 - The organisational resource implications of effective knowledge sharing do not differ according to the type of local authority.

The results of the Kruskal-Wallis test are given in tables 7.3 and 7.4.

Table 7.3: Kruskal-Wallis Test Statistics for organisational resource implications of effective KS in the planning permission process (Refer to planning authority and guideline of planning requirements)

a) Refer to planning authority and guideline of planning requirement														
Test Statistics ^{a,b}														
	Clear Rules	Employees sk	Leaders Comr	Decision makii	Education	Relationship	Motivation	Recognition	Environment	Power distanc	Trust	IT	Financial	Financial
Chi-Square	1.053	1.213	.372	4.137	7.470	6.729	10.415	2.434	1.091	.804	1.713	3.921	3.458	10.602
df	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.591	.545	.830	.126	.024	.035	.005	.296	.580	.669	.425	.141	.177	.005
* result (Bold) are statistically significant at p< 0.05														

Table 7.4: Kruskal-Wallis Test Statistics for organisational resource implications of effective KS in the planning permission process (Planning officer will refer to State Planning Dept. and NPPC)

b) Planning officer will refer to : State planning dept and NPPC														
Test Statistics ^{a,b}														
	Clear Rules	Employees skill	Leaders Comm	Decision making	Education	Relationship	Motivation	Recognition	Environment	Power distanc	Trust	IT	Financial	Financial
Chi-Square	1.652	1.537	.283	6.313	7.470	5.155	10.415	2.434	1.091	1.354	.939	7.509	4.585	9.393
df	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.438	.464	.868	.043	.024	.076	.005	.296	.580	.508	.625	.023	.101	.009
* result (Bold) are statistically significant at p< 0.05														

Organisational resource implication

The Kruskal-Wallis statistic measures how much the group ranks differ from the average rank of all groups. Thus, at the 5% level of significance, in most instances, the results suggest that organisational resources has implications on effective knowledge sharing in the planning permission process ('Refer to planning authority and guideline of planning requirements' and 'Planning officer will refer to State Planning Dept. and NPPC'). Therefore, the null hypothesis is rejected.

7.4 Summary

This chapter addressed part of the sixth objective.

According to the quantitative findings, the organisational resource implications of effective KS in local authorities, with respect to the role they have in contributing to the planning permission process, are:

1. Leaders' commitment
2. Employees skills and competencies
3. Relationship between co-workers
4. Trust
5. Allocation of appropriate employees
6. Allocation of financial budgeting

Considering what has been discussed above the following inferences can be made and implications identified:

1. Normally, management is concerned with attending to the employees and accomplishing smooth execution of the planning permission process as soon as possible, while the work culture does not care much about knowledge sharing. The workload is substantial for the employees, which hinders or prevents them from sharing knowledge with others. Productivity and efficiency will reduce if the management ignores the communication or relationship between co-workers, commitment and support from top management and using suitable incentives for encouraging employees.
2. At the same time, LAM and MHLA should provide or ensure that dedicated resources are available to cover essential jobs related to the planning permission process. They should ensure that they have contingency plans in place to deal with resource constraints like staff shortage.
3. Effectively developing employees' job descriptions is significant to an organisations success. In fact this will help people feel as if they know what is expected from them and know how to search for people if they have any problem related to their work.

CHAPTER 8. MEASURE THE IMPACT/CONTRIBUTION OF KNOWLEDGE SHARING INITIATIVES

8.1 Introduction

This chapter discusses the measurement of the impact or contribution of knowledge sharing initiatives in local authorities in Malaysia.

8.2 Importance of measurement

In order for LAM to achieve their goals they have to measure their knowledge sharing initiatives. Measurement is the basis through which it is possible to control, evaluate and improve processes. Hence, the degree to which an organisation effectively applies knowledge sharing initiatives is an indicator of the organisation's knowledge management development. However, it is generally believed that what cannot be measured cannot be managed. Most businesses use measurements to derive metrics that show the impact or effort, especially in the context of the planning permission process. It must be borne in mind that it is extremely difficult to create any measure of knowledge sharing that shows an absolute one-to-one correlation between a knowledge sharing action and a business result. However, according to the APQC (2003) report, it is important that measures and metrics be developed and collected for the purpose of continuous improvement in knowledge management activities. The most important characteristic to consider when choosing or defining the impact of knowledge sharing measures is whether the metric indicates if knowledge is being shared and used. Before implementing any knowledge sharing initiatives, key metrics should be developed and a baseline established, against which performance may be measured during and after implementation (Hoss and Schlussel, 2009).

8.3 The approaches to measurement of performance management

Several measurements of performance management have been undertaken to improve the services provided by the public sector organisations, especially those that affect commercial and investment activities.

These improvements encompassed initiatives under areas, such as quality management, information management, accountability and management integrity as well as human resource management. The measurement to improve the delivery of public services include reducing bureaucratic red tape by simplifying and streamlining systems and procedures, strengthening district land administration and the planning permission process. Most of the performance measurements focus on the hard context:

- Profitability/increased revenue
- Cost saving/cost reduction
- Time saving
- Increase productivity
- Quality improvements, i.e., number of errors avoided and cost avoided
- Products successfully launched

Below are discussions on most of the performance measurements that focus on hard measures.

8.3.1 Balance scorecard method

The balanced scorecard methodology is an analysis technique that is designed to align business activities to the vision and strategy of the organisation, improve internal and external communications, and monitor organisational performance against strategic goals. This method was developed by Kaplan and Norton (1996), who focussed on linking organisational strategy and the objective to measure. The methodology produces a balanced performance in four areas:

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- Financial analysis – includes assessment of measures, such as operating costs and return-on-investment
- Customer analysis – satisfaction and retention
- Internal processes – production and innovation, measuring performance in terms of maximising profit from current product and future productivity
- Learning and growth – measure employees satisfaction, retention and information system performance

Figure 8.1 illustrates that the balanced scorecard is based on the simple premise. To do this, one must first define what are the component parts of the organisation, i.e., assessment tax (housing, shop lot or industrial), that deliver financial performance. The balanced scorecard identifies three broad areas that must be examined: learning and growth perspective, internal business process perspective and the customer perspective. From the bottom, culture, skill, leader and information are aligned to the organisation's strategy and will create an effective and efficient business process (business process perspective). Effective and efficient product delivery, customer relationship, innovation and regulatory process, in turn, make sure that the organisation's offering meets the needs of the customer. From the customers' perspective, the organisation's offerings include products, services, relationships and brands. Satisfied customers and efficient business processes combine to produce growth, lower cost and better use of the organisation's capital, and the results bring an increase in profit and shareholder value. Therefore, if we create objective and measurement in each of the four perspectives that are aligned to the organisation's strategy we have a performance measurement and assessment system that is:

- Holistic – all critical areas in the organisation that produce a financial outcome are assessed.
- Easy to communicate strategy that can easily be explained and communicated
- Based on measuring four key dimensions (learning and growth, business process, customer and finally financial embracing key financial objectives)

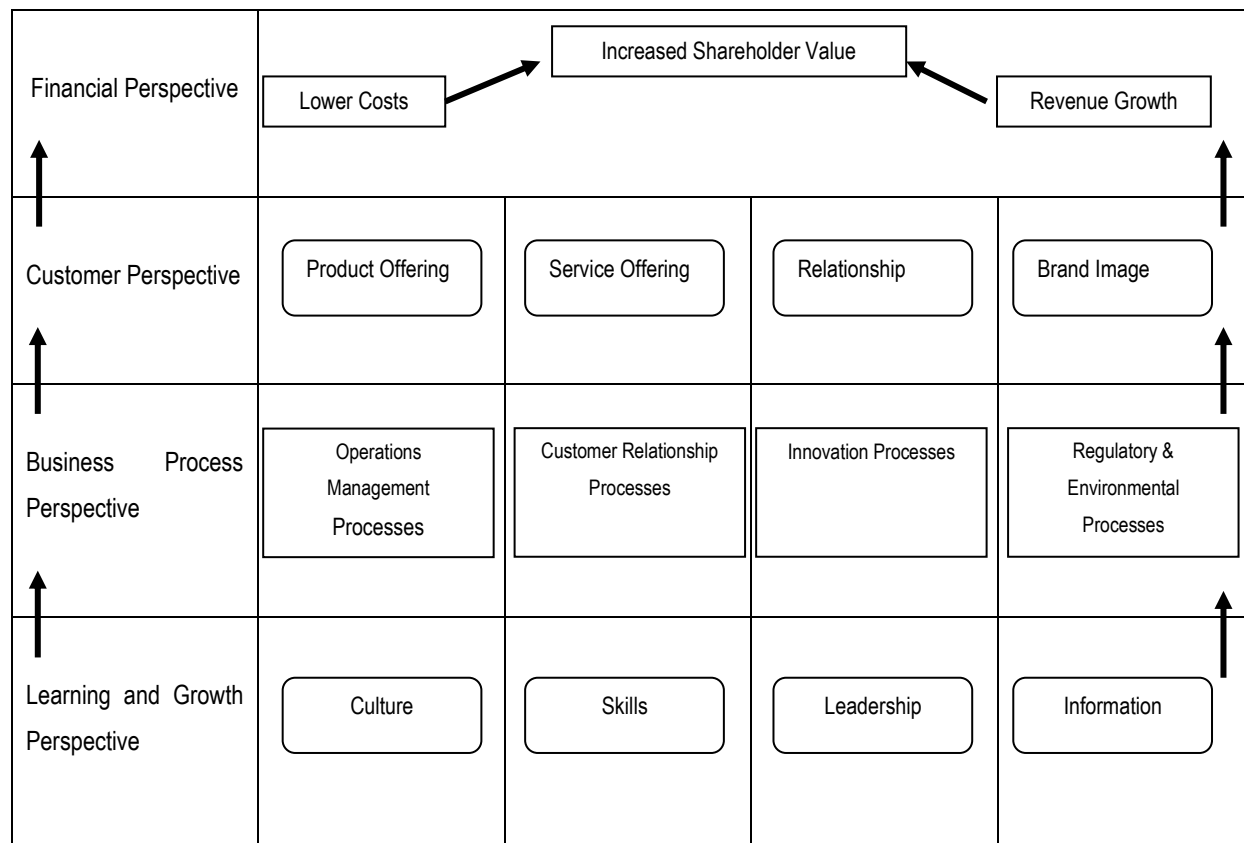


Figure 8-1: Balanced scorecard dimension

The advantages of using the scorecard method is that it can create a more comprehensive picture of an organisation's health than a financial metric and can be easily applied at any level of an organisation. Another advantage in the context of knowledge management is that it directly links the learning to process performance, which, in turn, is linked with overall organisation performance. However, the disadvantages are that the indicators are contextual, and have to be customised for each organisation and each purpose, which makes comparison very difficult. Thus, comprehensive approaches can generate a huge amount of data that is hard to analyse and to communicate.

8.3.2 Intangible assets method

The intangible assets monitor (IAM) was conceptualised by Sveiby at the end of the 1980s in Sweden. It is a method for measuring intangible assets, which present a number of relevant indicators for measuring intangible assets. The indicators depend on the organisation's

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strategy, such as human competence, internal structure and external structure, with further indicators that indicate change and indicate flows of knowledge, i.e., growth and renewal, efficiency/utilisation and risk/stability measures. The intangible assets monitor and analyse the target of financial measurement systems so as to find the yardsticks. This financial measurement system is generally used to determine the organisational efficiency. The risk/stability standard is the degree to which the organisation is able to maintain its performance in that particular area, while the growth and renewal standard points to the performance but in growth areas.

The uses of LAM involve perceiving the three intangible assets (growth or renewal/innovation, efficiency or utilisation, and risk or stability) and then implementing them on the external structure, internal structure and competence. The LAM is based on people as an organisation's profit generator. It argues that knowledge workers should not be regarded as costs but rather as revenue creators and that knowledge or employee's competence are sources of wealth creation. If the notion of employees as revenue creators is accepted, then there is a need for the organisation to move closer to "the source" of employees' knowledge if they wish to measure it more accurately.

The organisation should try and find a metric indicating a change in the assets, such as growth and renewal, efficiency/utilisation and risk/stability before implementing LAM. The idea should give a brief overview of how the intangible assets are developing, by designing indicators that correlate with the growth of the asset in question, its renewal rate, its effectiveness and the risk. Compared to the balanced scorecard method, it is a more demanding option for the management team and the strategy focuses more on knowledge.

8.4 Measure the impacts or contributions of knowledge sharing initiatives in local authorities

There are real practical difficulties to measuring the impact and level of contribution of knowledge sharing initiatives, such as improved efficiency, performance, knowledge of the worker, accountability, quality of work and decision making that is typically high level

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strategy goals for local authorities. There are also difficulties in measuring situations when a service is received by the ‘customer’, especially in the context of the planning permission process. However, this measure and the level of contribution that knowledge sharing initiatives have reflect the success of LAM in implementing these initiatives.

In recent years, a large number of national governments, departments and agencies have embraced KM programmes. For example, Cong and Pandya (2003) differentiate the benefits of KM into two levels: individual level and organisational level. The table below lists the various examples in the literature that highlight the success and benefits of using KM programmes.

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Table 8.1: List of literature that highlight the success of knowledge management programmes

Factor/Author	Cheng (2007)	Riege and Lindsay (2006)	Egbu <i>et al.</i> (2005)	McAdam and Reid (2001)	Wiig (2002)
Improve efficiency	Improving the organisation's efficiency	Maximise efficiency – connecting of information across organisation	Immediate result in solving problems and ability to sustain competitive advantage of an organisation	Improve efficiency	Improve efficiency through building personal expertise – training programme
Improve performance		Develop system to improve overall performance and easier accessible	Organisation productivity and delivering services to client	Reduce operating cost	Competent and effective public service –quicker response
Improve accountability	Develop strong network within organisation and inter-organisation	Wider community become knowledgeable and more transparent	Improve integration of knowledge within organisation and improve capture and use knowledge from source outside organisation	Improve product/ service	Promote integrative management culture –by fostering a knowledge-supportive culture –ethical, behaviour
Improve quality of work		Better and more cost-effective services and responsiveness to the public	Quality of an organisation's workforce through capacity building and upskilling and enhance client relationship	Improve quality	Quality of work
Improve decision making	Quality decision making		Streamline internal administrative process, enhance business development and creation opportunities for organisations	Improve management learning	Enhance decision making
Knowledge worker	Promote a knowledge-orientation culture	Develop capable knowledge worker	Improve employee retention, motivation and formalised knowledge transfer		Educate employees – provide opportunities to learn.

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8.4.1 Improve efficiency

Efficiency can be defined as the ability to do something well or achieve a desired result without wasted effort or energy (YourDictionary.com). The researcher, divided impact or contribution of improvement efficiency into two using knowledge sharing tools (technologies) and techniques (refer sections 4.4 and 4.5). Rameli *et al.* (2006) defined the benefits of using the planning system, such as easier to control, managing and efficiency in responsiveness of housing development and supply in local authorities in Malaysia.

Employees in the organisation share a social and organisational context in which they establish an informal relationship that supports the exchange of knowledge between team members in the organisation, i.e., Brainstorming, CoP, mentoring and coaching and project review (refer section 4.5.1). These techniques improve the organisational unit efficiency by reusing and improving existing knowledge and best practices in the organisation (Davenport and Probst, 2002).

The mechanisms through which knowledge sharing tools (technologies) affect the efficiency include reuse, electronic documents or office database, which often include detailed information and well-developed analysis, such as information of the previous applicant for the planning permission process. Reusing existing information and analyses can prevent the planning department from duplicating efforts already expended by others. March (1991) mentioned that the quality of the knowledge contained in electronic documents could save time by exploiting this knowledge.

8.4.2 Improve performance

The Oxford Dictionary defines performance as the action or process of performing a task or function or operation seen in terms of how successfully it is performed. According to Scarbrough *et al.* (1999), the KM programme covers any intentional and systematic process or practice of acquiring, capturing, sharing and using productive knowledge, wherever it resides, to enhance learning and performance in organisations. Concerning the KPMG (2000) report, organisations that had a KM Programme in place will derive benefit from the improved performance in their organisation. It can be argued that performance in an

organisation is derived from two perspectives, the employee's and organisational performance. Employees' performance includes practices like mentoring, CoP, brainstorming, helping people to apply practical methods to improve learning and perform better, improve morale and individual performance of working as well as quality of work at all levels. Goldstein (1992) defined training as the systematic acquisition of attitudes, concepts, knowledge, roles or skills that result in improved performance at work.

However, there are a host of other transformations (concerning organisations, knowledge management, training and cognitive and mental representations of codified knowledge as opposed to contextual and tacit knowledge) that are necessary in making it possible to fully realise the transformation potential offered by IT. Nawakda *et al.* (2008) argued that the implementation of KMS in the Ministry of Health, Kingdom of Bahrain, improved work practices and performance due to the system with HR.

8.4.3 Improve knowledge of the worker

Individuals in the organisation create and share knowledge as a natural function of the workplace, and, sometimes, as an activity that takes place automatically. Lam (2000) defined individual knowledge as "that part of an organisation's knowledge which resides in the brains and bodily skills of the individual". The knowledge possessed by the individual can be applied independently to specific types of task or problem. Thus, individuals have cognitive limits for storing and processing information; individual knowledge tends to be specialized and domain specific in nature (Lam, 2000).

In knowledge intensive organisations (Section 2.2.2) most of the workers are knowledgeable, where, typically, highly qualified, knowledge and skill are important to organisational performance, skills are difficult to codify and highly tacit and their work tasks focus on creation, utilisation and application of knowledge, which are highly specialised in nature. Communication between workers within organisations determines what type of environment is most conducive to creativity and knowledge sharing. How willing are people to share their ideas and what they know? Thus, sharing their knowledge enhances the reputation of the organisation.

8.4.4 Improve accountability

The Oxford Dictionary defines accountability as a fact or condition of being accountable; responsibility. Christensen and Ebrahim (2004) defined accountability as indicating who is responsible for completing a particular activity. However, in the context of the public sector it is often used synonymously with such concepts as responsibility (Dykstra, 1939), answerability, blameworthiness, liability, and other terms associated with the expectation of account giving. KM programmes need commitment from various levels of people in the organisation including top management, technical staff and support staff. In leadership roles, accountability is the acknowledgement and assumption of responsibility for actions, tasks, decision and policies including the administration, governance, and implementation within the scope of the role or employment position.

Congruent with the previous point is the necessity to implement capacity enhancing activities in which skill building and knowledge development should also be directed at all levels of staff in the organisation so that they can appreciate the meaning and the importance of effective governance and its contribution to accountability. For example, in local authorities, technical staff and supportive staff should be encouraged to attend meetings and other tasks related to the planning permission process and capacity building interventions. Bechina and Ndlela (2009) suggested that the efficient use of information and communication technology have improved the transparency and accountability in Norwegian municipalities. They added that the synergy by integrating people (working teams, culture change, motivation and learning facilities), process (best practice, optimal resources uses, strategy and relationship) and technology (knowledge repositories, collaborative platform and data-mining) needed to be pursued in order to improve the business process.

In addition, training and development programmes are also a necessity for the success of KSI (Liebowitz, 1999). The implications of the learning and training can upgrade skills and development, knowledge and quality (Salleh and Goh (2002), and accountable workers interpersonal and communication skills. Hsu (2008) added that training programmes equip employees with idiosyncratic knowledge that is more valuable to the organisation. Thus, training attempts to make a connection between tacit and tacit knowledge that is a part and parcel of the workers' day-to-day experience.

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8.4.5 Improve quality of work

Hackman (1987) argued that high quality work refers to the extent to which the output of the task (e.g., product or decision) meets or exceeds the expectation of those who receive or use it. Experienced employees can provide benefit through high quality input, using CoP, brainstorming sessions, mentoring and coaching to improve work quality. In the planning department setting, team members who have experience in planning development can provide or draw on complementary expertise to generate ideas and identify possible avenues to pursue for visible solution. Through these processes (CoP, brainstorming session, mentoring and coaching), the relative richness of direct personal contact also enables such colleagues to help develop customised and creative products for its clients, since they can tailor their advice to the situation and engage in two-way discussion to gain insights into the problem and aid exploration of possible solutions.

Knowledge sharing tools (technologies) usage is likely to only have an indirect effect on work quality through time saving. The usage of the planning approval system, geographical information system and electronic office databases was discussed in section 4.4.1.

8.4.6 Improve decision making

As mentioned earlier in chapter 2, the planning permission process undertaken by local authorities involves complex procedures as well as various stages. The process of analysing the appropriateness of a planning application requires many stages of decision-making, and, hence, necessitates collaboration among the employees involved to allow the proposed development to be properly evaluated by the relevant decision-making body before planning permission is granted.

Knowledge is dynamic and context based because it is constantly changing through experience and learning. Knowledge puts information into 'ease of use' form, which can facilitate decision-making. It is also a powerful force that can be used to overcome barriers and influence decision-making in organisations, and, generally, 'enable' and refresh individuals and the organisation so that they can accomplish goals and complete work successfully (Stewart, 2001). Davenport and Prusak (1998) contended that the reason why knowledge is more valuable than data or information is that it is closer to action.

The process of knowledge sharing also tends to flourish where expertise and experience in one part of the business is accessible to other parts of the business, where there is regular interaction between co-workers with different types of expertise and specialised knowledge. In this respect, Isenberg (1984) argued that tacit knowledge is a critical element for successful strategic decision-making. If knowledge workers do not have decision-making authority, they are less likely to share their knowledge with others (Lee and Choi, 2003).

8.5 Knowledge sharing initiatives

As mentioned earlier in section 2.7, in this research the researcher has considered KSI in the context of LAM in the planning permission process. The main objective of KSI is to improve or enable KS or transfer knowledge across units in organisations. According to Darroch (2005), implementing various knowledge management initiatives to identify, share and exploit organisational knowledge is important to organisational innovation and performance.

Sveiby (2001) conducted research from companies and practitioners worldwide, and developed forty(40) knowledge management initiatives. In the case study conducted by Bhirud *et al.* (2005) they listed six (6) KSI in an Indian Software Company. Research conducted in the context of the Bahrain public sector, listed eleven (11) knowledge sharing initiatives (Al Nawakda *et al.* 2008). In the context of Malaysia, Badruddin (2004) defined four (4) knowledge management initiatives in government agencies. While, research in the Ministry of Entrepreneurs in Malaysia found three (3) KMI – capturing knowledge in electronic repositories, technology to share knowledge and supportive environment. Based on the above discussion and a thorough literature review, the researcher has identified four (four) KSI in local authorities:

- Capturing knowledge in repositories
- Information technology to share and transfer knowledge
- Creating a supportive environment for knowledge sharing
- Identifying internal and external best practices from which knowledge can be obtained

Measure the impact/contribution

8.5.1 Level of contribution of knowledge sharing initiatives

Tables 8.2 and 8.3 show the results of the level of contribution of KSI in local authorities in Malaysia.

Table 8.2: Level of contribution of knowledge sharing initiatives in reference to planning authority and guideline of planning requirements

a) Refer to planning authority and guideline of planning requirement		
Knowledge Sharing Initiatives	Local Authorities	
	Overall	Rank
Capturing knowledge in repositories	1.7379	1
Identifying internal and external best practices from which knowledge can be obtained	1.8350	2
Information technology to share and transfer knowledge	2.0874	3
Creating a supportive environment for knowledge sharing	2.3592	4
<i>Meaning of scale: 1 (A Very High Level Contribution), 2 (A High Level Contribution), 3 (A Fairly Level Contribution), 4 (No Level Contribution At All).</i>		

Table 8.3: Level of contribution of knowledge sharing initiatives for planning officer will refer to State Planning Department and NPPC

b) Planning officer will refer to : State planning dept and NPPU		
Knowledge Sharing Initiatives	Local Authorities	
	Overall	Rank
Capturing knowledge in repositories	1.8155	1
Identifying internal and external best practices from which knowledge can be obtained	1.7573	2
Information technology to share and transfer knowledge	1.9903	3
Creating a supportive environment for knowledge sharing	2.4175	4
<i>Meaning of scale: 1 (A Very High Level Contribution), 2 (A High Level Contribution), 3 (A Fairly Level Contribution), 4 (No Level Contribution At All).</i>		

Tables 8.2 and 8.3 show the level of contribution of knowledge sharing initiatives in the two stages of the planning permission process. From the list, which comprised four types of knowledge sharing initiatives, the planning officers and related officers (Refer Section 3.6) were asked to identify those lists of knowledge sharing initiatives that they found a level of contribution to the two stages of the planning permission process. Meaning of scale: 1 (A Very High Level of Contribution), 2 (A High Level of Contribution), 3 (A Fairly Level of Contribution), 4 (No Level of Contribution At All) (see questionnaire in Appendix A). The average scores were then computed from the ordinal coding of these data. As the mean score increases, the level of contribution decreases.

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Both tables present the full list of the level of contribution of KSI, as perceived by 103 respondents who participated in the questionnaire of the present research.

It is evident that the respondents (Refer section 3.6) ranked the highest level of contribution of KSI in the two stages of the planning permission process as: capturing knowledge in repositories, identification of internal and external best practices from which knowledge can be obtained, information technology to share and transfer knowledge and creating a supportive environment for knowledge sharing.

There are various explanations for this result. Capturing knowledge in repositories for local authorities can be done either electronically or non-electronically. In the planning department setting, most of the knowledge contained for planning development is stored electronically, especially at the stage of planning authority and guidelines of planning requirements. All regulations, acts and previous information regarding planning approval are stored in databases. This was supported by one of the interviewees.

The interviewee of HDPC1 said that, “....*we keep all records in the computer..... electronic office databases... easier and faster to retrieve..... also exploiting knowledge.*”

However, non-electronic information, such as ISO documentation, work manual documentation, and planning checklist are codified knowledge to prevent organisational memory loss. According to Zack (1999), to remain competitive, an organisation must efficiently and effectively create, locate, capture and share knowledge and expertise in order to apply that knowledge to solve problems and exploit opportunities. Explicit knowledge plays an important role in an organisation. He also suggested that knowledge may be of several types in an organisation – declarative knowledge, procedural knowledge and causal knowledge, and can be arranged from general to specific.

Best practices can be defined as ‘generally-accepted, informally-standardized techniques, methods or processes that have proven themselves over time to accomplish given tasks.’ Kogut and Zander (1992) revealed that practices are the organisation’s routine use of knowledge and tacit knowledge in collaborative social arrangements. To facilitate knowledge disseminated in the LAM, knowledge must be shared within the organisation. McAdam and Reid (2000) determined from their research that workshops, forums, training and in-house seminars are key methods of internal best practice. An implication of this is that the participants in the workshop, forum or training allow the existence of the social environment

Measure the impact/contribution

of knowledge, which includes employees' participation and sharing their expertise. This was revealed by one of the interviewees:

The interviewee of HDOC1 said that, *"....training and workshops allow the participants to share and exchange their knowledge and expertise between staff.....OSC Portal is one of the mechanisms to check previous solutions or problems that occur in planning development."*

ISO documentation, standard procedures and manual documents are other practices that assist employees who are undertaking the task or processes consistently. Because internal knowledge sharing or transfers are typically hindered less by confidentiality and legal obstacles compared to external knowledge sharing, they could be faster and initially less complicated.

The role of IT in knowledge management programmes is that of an enabler or for supporting core knowledge management activities, i.e., knowledge creation, knowledge distribution and knowledge application (Gold *et al.*, 2001). Technological impetus has revolutionised the way we communicate, store, and exchange data at high speed. Ruggles, (1997) classified KM tools into three categories;

- Knowledge generation –enables the acquisition, synthesis, and creation of knowledge
- Knowledge codification –representation of knowledge
- Knowledge transfer – easy to access and transfer

The common IT applications employed by LAM include planning approval system, geographical information system, Internet, intranet, office databases system and OSC portal. The quality and speed of knowledge transfer is dependent upon and has been considerably improved through the support of technology (Ruggles, 1998). An implication of this is the usage of information technology to share and transfer knowledge, i.e., the OSC portal was developed as a network between all planning officers in local authorities in Malaysia. The portal encourages a reciprocal approach in which the local authority staff can build trust and network. Thus, it is a basis for improving sharing and disseminating knowledge and thus mutual relationship. As explained, one of the reasons behind developing the OSC portal by MHLG was to provide a knowledge network group with the facilities for sharing knowledge and expertise and encourage cross-disciplinary working.

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Table 8.4: Results from interviewees regarding different approaches in place to encourage KS in the planning permission process

Local Authorities	Different approach in place	Frequency
City	1. Provide open space 2. Provide discussion place (coffee corner or meeting)	3
Municipal	3. Organised activities (Public/client feedback, religious festival) 4. Encourage teamwork or doing work in group	9
District	5. Conduct programme – to motivate staff 6. Reward system – monthly staff awards	8
Total		20

The findings from the interviewees indicate that there are different approaches in place to encourage KS in LAM. Table 8.4 shows the different approaches in place to provide a conducive environment for effective knowledge sharing. According to the interviewees (section 5.7):

The interviewee of HDPM3 said that, *“The most important things in the programmes that we run.....to create an environment of teamwork, develop trust, relationship between staff and good working environment.*

The interviewee of HDPC 1 said that, *“Even though we have a good working environment, such as working space, open office layout, technologies.... the main point is the core value of the organisation, such as teamwork, honesty, professionalism and recognition”*

An implication for this, however, is a wider issue related to a conducive environment, such as Soliman and Spooner (2000), who identified seven approaches to creating supportive environments for KM programmes. Informal coordination within the organisation clearly positively influenced the effectiveness of knowledge sharing. De Long and Fahey (2000) suggested that several actions should be taken by managers to discover how their culture shapes assumptions about knowledge creation, sharing and use. According to Hensen (2002), use of informal coordination assists in developing trust and openness towards accepting, and, thus, applying the knowledge of others.

In the setting of local authorities, leaders have to rely on their social skills to get and encourage employees to share their knowledge.

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8.5.2 Level of contribution of knowledge sharing initiatives according to the various sizes of local authority

The approach adopted in analysing data at the aggregate level will also be employed at the disaggregate level for the city, municipal and district authorities. As the mean score increases, the level of contribution decreases.

To discuss the data analysis, observation of tables 8.4 and 8.5 reveals the four listed KSI ranked by all types of local authorities as having a very high level of contribution.

In the level of contribution of KSI for city, municipal and district authorities, there are slight differences concerning the ranking for identifying internal or external best practices from which knowledge can be obtained and capturing knowledge in repositories for both parts of the planning permission process. For district authorities, capturing knowledge in repositories has a very high level of contribution to KSI, but for ‘planning officer will refer to State Planning Department and NPPC’, identifying internal or external best practices.

This shows that the setting of city councils, which involves a high population of citizens and development compared to both municipal and district authorities, allows them to be more proactive and innovative in doing work compared to municipals and district councils, especially in development control.

Conversely, for municipal and district authorities (section 2.3.2), even though they have a relatively limited area of work compared to city authorities, to be successful in KSI they have to fully exploit a systematic management for KSI, so that they can gain benefit for their organisation and a source of competitive advantage.

Therefore the management have to set out clear goals and objectives in their strategy for implementation of KSI within the organisation. Another issue that must be considered is the lack of understanding of employees concerning the importance of KS in their work process for the success of KSI. Nonaka and Takeuchi (1995) highlighted that knowledge management is not just knowledge per se, and that what is important is the integration and sharing of individuals’ knowledge, which plays a vital role.

Measure the impact/contribution

Table 8.5: Level of contribution of knowledge sharing initiatives in refer to planning authority and guideline of planning requirements – at the disaggregate type of local authority

a) Refer to planning authority and guideline of planning requirement						
Knowledge Sharing Initiatives	Local Authorities					
	City	Rank	Municipa l	Rank	District	Rank
Capturing knowledge in repositories	1.8929	2	1.7255	1	1.5833	1
Identifying internal and external best practices from which knowledge can be obtained	1.8571	1	1.9020	2	1.6667	2
Information technology to share and transfer knowledge	2.3929	3	2.0000	3	1.9167	3
Creating a supportive environment for knowledge sharing	2.6071	4	2.2745	4	2.2500	4
Meaning of scale: 1 (A Very High Level Contribution), 2 (A High Level Contribution), 3 (A Fairly Level Contribution), 4 (No Level Contribution At All)						

Table 8.6: Level of contribution of knowledge sharing initiatives in planning officer will refer to State Planning Department and NPPC – at the disaggregate type of local authority

b) Planning officer will refer to : State planning dept and NPPC						
Knowledge Sharing Initiatives	Local Authorities					
	City	Rank	Municipa l	Rank	District	Rank
Identifying internal and external best practices from which knowledge can be obtained	1.8929	1	1.8039	2	1.5000	1
Capturing knowledge in repositories	2.0714	2	1.8039	1	1.5417	2
Information technology to share and transfer knowledge	2.3571	3	1.8627	3	1.8333	3
Creating a supportive environment for knowledge sharing	2.5000	4	2.4118	4	2.3333	4
Meaning of scale: 1 (A Very High Level Contribution), 2 (A High Level Contribution), 3 (A Fairly Level Contribution), 4 (No Level Contribution At All)						

This was further examined using the Kruskal-Wallis test to identify whether the type of local authority has an impact on the results discussed (tables 8.5 and 8.6). The test of null hypothesis was used to investigate this. The results are given in tables 8.7 and 8.8.

Null hypothesis H0 - The contribution of KSI in 'refer to planning authority and guideline of planning requirements' do not differ according to the type of local authority

Table 8.7: Kruskal-Wallis test statistics for level of contribution of knowledge sharing initiatives in refer to planning authority and guideline of planning requirements

a) Refer to planning authority and guideline of planning requirement				
Test Statistics ^{a,b}				
	Capturing	Information	Supportive	Identifying
Chi-Square	3.280	8.418	3.885	1.218
df	2	2	2	2
Asymp. Sig.	.194	.015	.143	.544
* result (Bold) are statistically significant at $p < 0.05$				

As per 3.9.1.4, the Kruskal-Wallis test measures how much the group ranks differ from the average rank of all groups. Thus, at the 5% level of significance, the results suggest that the level of contribution of KSI for 'refer to planning authority and guideline of planning

Measure the impact/contribution

requirement' part of planning permission process does not differ according to the type of local authority. Therefore the null hypothesis is accepted.

Null hypothesis H0 - The contribution of KSI in 'Planning officer will refer to State Planning Department and NPPU' do not differ according to the type of local authority

Table 8.8: Kruskal-Wallis test statistics for level of contribution of knowledge sharing initiatives in planning officer will refer to State Planning Department and NPPC

b) Planning officer will refer to : State planning dept and NPPC				
Test Statistics ^{a,b}				
	Capturing	Information	Supportive	Identifying
Chi-Square	7.239	9.609	.568	2.937
df	2	2	2	2
Asymp.Sig.	.027	.008	.753	.230
* result (Bold) are statistically significant at $p < 0.05$				

For 'planning officer will refer to State Planning Department and NPPC', the results suggest that the level of contribution of KSI does not differ according to the type of local authority. Therefore the null hypothesis is accepted.

8.6 KSI contribute to the list of performance measures

Organisational strategies for KSI differ from one organisation to another. Similarly, the approaches that an organisation puts forward for measuring their performance for the contribution of KSI success as well as the time frame for judging performance success differ greatly. The contributions of KSI have been discussed in section 8.4. A highly successful performance for one organisation may not be seen to be so by another organisation. Therefore, it is important to know and understand the modus operandi of an organisation involved in improving their services before judgement is made as to whether KSI contribute to the organisation's success. Egbu (2004) listed ten different variables through which an organisation's success in innovation can be measured.

- Percentage of profit and sale
- Number of solutions and new product
- The number of new/innovative ideas
- The average number of man-hours input per new product/solution
- The average time to market of the innovative product or solution
- The level of satisfaction of the client or customer

Measure the impact/contribution

- The average failure rate of the innovation
- The extent to which innovation planning is linked to overall organisational strategy
- The extent to which there are formal mechanisms to capture and share learning associated with the innovation
- The extent to which the workforce is involved in innovation.

Mohamed and Egbu (2010) identified the process of measuring the impact of knowledge sharing in the planning permission process within local authorities in Malaysia, which includes:

- What is the objective of the planning permission process?
- What are the knowledge sharing tools and techniques used?
- Who are involved in the planning permission process and what do they need to know?
- What should be measured?
- How to collect data?
- What do the measures tell us and how should we change?

Measure the impact/contribution

Table 8.9: Rank order of knowledge sharing initiatives contributes to the listed performance measures in the planning permission process.

Kendall's W Test		
Ranks		
	Mean Rank	Rank
Technology - Improve efficiency	4.71	1
Capture- knowledgeable Worker	6.89	2
Internal-efficiency	6.97	3
Internal- knowledgeable Worker	7.47	4
Environment- knowledgeable Worker	7.55	5
Technology-quality	9.10	6
Capture-efficiency	9.18	7
Environment-accountability	10.11	8
Technology-knowledgeable Worker	10.73	9
Capture-quality	11.04	10
Environment-efficiency	11.43	11
Internal- decision making	12.56	12
Environment-quality	12.60	13
Internal-quality	13.53	14
Environment-performance	13.65	15
Capture-decision making	13.72	16
Technology-decision making	13.92	17
Internal-performance	14.69	18
Technology-performance	15.43	19
Capture-Performance	16.09	20
Capture-accountability	18.07	21
Environment-decision making	19.67	22
Internal-accountability	19.78	23
Technology-accountability	21.10	24

Test Statistics	
N	103
Kendall's W ^a	.401
Chi-Square	949.348
df	23
Asymp. Sig.	.000

Table 8.9 reports the rank order of knowledge sharing initiatives that contribute to the listed performance measures in the planning permission process. As the mean score increases, the degree that KSI contribute to performance measures decreases.

As shown in table 8.9 the respondents ranked '*Information technology to share and transfer knowledge*' as the KSI that most contributed to improve efficiency in performance measures. '*Capturing knowledge in repositories*' was ranked as the second KSI to improve the

Measure the impact/contribution

knowledge of the worker and *'Identifying internal or external best practices from which knowledge can be obtained'* was ranked as the third KSI contributing to improve the efficiency in performance measures.

'Identifying internal or external best practices from which knowledge can be obtained' was ranked as the 23rd KSI to contribute to improve accountability and *'Information technology to share and transfer knowledge'* was ranked as the 24th KSI to contribute to improve accountability in performance measures.

It is useful to test if there is agreement among the 103 respondents in their rating of the degree that KSI contribute to the listed performance measures. If there is agreement among respondents, then this would further add consistency to the results of the research.

To test the null hypothesis:

Null hypothesis H0 – There is no agreement among respondents in their rating of the contribution of knowledge sharing initiatives in the planning permission process to the listed performance measures.

Kandell's Coefficient of Concordance W, is appropriate to measure the agreement between respondents or relationship (Field, 2009; Pallant, 2007; Kendall, 1980). Kandell's Coefficient of Concordance W, is the measure of agreement among several (p) judges who are assessing a given set of n objects and $0 \leq w \leq 1$ (Legendre, 2005).

In other words, this method is for determining whether the observed value is significantly different from zero, depending on the size of N (the number of objects ranked), as inspection of figure Table 8.8 shows, ' W ' = 0.401, indicating a fairly strong relationship. According Green and Salkind (2008) the coefficient of concordance ranges from 0 to 1, with a higher value indicating a strong relationship and the chi-square= 949.348 at the 0.00 level of significance. This means that there is agreement among the 103 respondents in their ranking of the contribution of knowledge sharing initiatives in the planning permission process to the listed performance measure. Therefore the null hypothesis is rejected.

Measure the impact/contribution

8.7 Summary

The main finding of this research is that different types of knowledge used in the planning permission process affect the impact and contribution of knowledge sharing initiatives in local authorities. Using high quality knowledge sharing tools (technologies) increases the time saving for evaluating the application but does not affect the work quality. In addition, using knowledge sharing techniques has improved the quality of teamwork of knowledge workers by increasing their ability to signal competence in serving their clients.

CHAPTER 9. THE DEVELOPMENT AND VALIDATION OF A MODEL OF KNOWLEDGE SHARING INITIATIVES IN LOCAL AUTHORITIES AND THE GUIDANCE OF ESTABLISHING THE SIGNIFICANCE OF KNOWLEDGE SHARING INITIATIVES IN LOCAL AUTHORITIES IN MALAYSIA

9.1 Introduction

This chapter discusses the development of a model of knowledge sharing initiatives and the guidance of establishing the significance of KSI in local authorities in Malaysia. These address the eighth objective and the aim of this research. The theoretical background and the underlying principals supporting the development of both the model and guidance are first discussed. This is followed by an outline of the design and main function of the model and the guidance. The potential of the tools to enhance managerial ability to select and apply appropriate KS technologies and techniques for successful KSI are also discussed. The testing and validation of the model and the guidance are described and outcomes discussed. Throughout, the chapter reflects on the findings in order to fulfil the research objectives.

To develop and validate a conceptual model of knowledge sharing initiatives in local authorities in the context of the contribution they make, to the planning permission process

9.2 The development of conceptual framework

The development of the conceptual framework should be the first stage for this research. It is used to outline possible courses of action to present a preferred approach to an idea of thought. According to Miles and Huberman (1994), the conceptual framework can be *'either graphical or in narrative form, the main thing to be studied – the key factors, constructs or variables – and the presumed relationship among them'*.

Holsapple and Joshi (2002) identified sixteen reasons for the need of a KM framework.

Therefore, the conceptual framework assists in identifying a reasonable set of ideas or main areas that need to be considered during the development of the study, the direction the researcher takes when developing the study and focuses on the subject area through the identification of the scope/boundary of the study. For that reason, the constituent elements of a conceptual framework can be noted as the main concepts, their interrelationships and the presence of a boundary within which the concepts and their interrelationships are applicable. In the context of this research, the development of the conceptual framework involved five main levels. The following sub-sections discuss these levels in detail as below:

1. Level 1- Recognise the central focus of the conceptual framework
2. Level 2- Examine the KSI in local authorities
3. Level 3- Relationship between knowledge sharing initiatives and the contribution of KSI
4. Level 4- Development of the conceptual framework

Level 1 – Recognise the central focus of the conceptual framework

Successful knowledge sharing in an organisation depends on the people, process and technology and also the understanding of its core business strategy. The source of knowledge identified for knowledge sharing could be internal or external.

Internal knowledge:

- Knowledge from employees
- Documentation repositories (electronic or non-electronic)
- Mentoring and coaching
- Communities of practice
- Apprenticeship

Model development and validation

- Project review/lesson learn
- Knowledge base system

While, external knowledge:

- Knowledge from external training and seminar
- Workshop
- Formal meeting between government agencies (TNB, MHLG, PWD)
- Internet

The next stage involves the examination of knowledge sharing initiatives in local authorities.

Level 2 – Examine the KSI in local authorities

Managing organisational knowledge creation and sharing become an important source for local authorities in Malaysia. Therefore, to examine the KSI in local authorities, the researcher has listed the KSI (refer section 8.5). These were derived from a thorough review of the literature. Zack (1999) argued that organisations that are managing knowledge effectively should understand their strategy, by adopting a knowledge strategy appropriate to their business strategy and implementing an organisational technology that is appropriate to the organisation's knowledge needs. Based on this the researcher has listed knowledge sharing initiatives in local authorities and then groups it into four main groups.

Table 9.1: List of knowledge sharing initiatives in planning permission process.

List of knowledge sharing initiatives	Group KSI in local authorities
Capturing, storing and reusing knowledge repositories	Capturing knowledge in repositories
Using information technology to share and transfer knowledge	Information technology to share and transfer knowledge
Creating supportive environment for knowledge sharing Develop and maintaining employees skills, expertise and competencies Rewarding employees who contribute to share knowledge Motivating employees who share knowledge	Creating a supportive environment for knowledge sharing
Identifying internal or external best practices	Identifying of internal or external best practices from which knowledge can be obtained

Level 3 – Relationship between knowledge sharing initiatives and the contribution of KSI

Referring to Table 9.2 shows that relationship between KSI and contributes of KSI. The knowledge sharing initiatives are: capturing, storing and reusing knowledge repositories; using information technology to share and transfer knowledge; creating a supportive environment for knowledge sharing, and identifying internal or external best practices. The KSI contributions are to: improve decision making, improve performance, improve efficiency, improve quality, improve accountability and improve the knowledge held by workers (refer to section 8.4.1 until 8.4.6 for details). According to KPMG (1998) and KPMG (2000), the contributions of KSI are: improving decision making, improving performance, improving efficiency, improving accountability and improving the knowledge held by workers. Whereas Abdul Karim (1995) stated that the KSI contributions are: improving performance, improving efficiency, improving quality and improving accountability. McAdam and Reid (2000) highlighted that their KSIs contributed to improving efficiency and to improving quality. Zheng *et al.* (2009) emphasised that the contribution of KSI is to improving efficiency, improving quality and improving the knowledge of workers. However, many researchers have stated that the contribution of knowledge sharing initiatives is only to improve performance (Rašul, Vukšić and Štemberger (2012); Čater and Čater (2009); Fugate *et al.* (2009); Škerlavaj (2006); Ahn *et al* (2004); Lee and Yu (2004); Lin (2000)).

Model development and validation

Table 9.2: Relationship between knowledge sharing initiatives and contribution of knowledge sharing initiatives

KSI	Improve Decision Making	Improve Performance	Improve Efficiency	Improve Quality	Improve Accountability	Improve knowledge of workers	Authors
Capturing, store and reused knowledge repositories	√	√	√		√	√	KPMG (1998) ;KPMG (2000)
Using information technology to share and transfer knowledge	√	√	√		√	√	
Creating supportive environment for knowledge sharing	√	√	√		√	√	
Identifying internal or externals best practices	√	√	√		√	√	
Capturing, store and reused knowledge repositories		√	√	√	√		Abdul Karim (1995)
Using information technology to share and transfer knowledge		√	√	√	√		
Creating supportive environment for knowledge sharing		√	√	√	√		
Identifying internal or externals best practices		√	√	√	√		
Capturing, store and reused knowledge repositories			√	√			McAdam and Reid (2000)
Using information technology to share and transfer knowledge			√	√			
Creating supportive environment for knowledge sharing			√	√			
Identifying internal or externals best practices			√	√			
Capturing, store and reused knowledge repositories		√					Rašul a J. Vukšić V.B. and Štemberger M.I. (2012) ; Čater and Čater (2009); Fugate et al.(2009); Škerlavaj (2006).Ahn et al (2004); Lee and Yu (2004); Lin (2000)
Using information technology to share and transfer knowledge		√					
Creating supportive environment for knowledge sharing		√					
Identifying internal or externals best practices		√					
Capturing, store and reused knowledge repositories			√				Zheng et al. (2009)

Model development and validation

Using information technology to share and transfer knowledge			√				
Creating supportive environment for knowledge sharing			√				
Identifying internal or external best practices				√		√	

Level 4 – Development of conceptual framework

As mentioned earlier, the conceptual framework was developed in order to address objective number eight. The conceptual framework is presented in Figure 9.1. The framework is divided into three main areas – knowledge sharing initiatives, contributions and improvement in the planning permission process – which are highlighted in the conceptual framework. The framework was developed for use in the next stage of the study.

Model development and validation

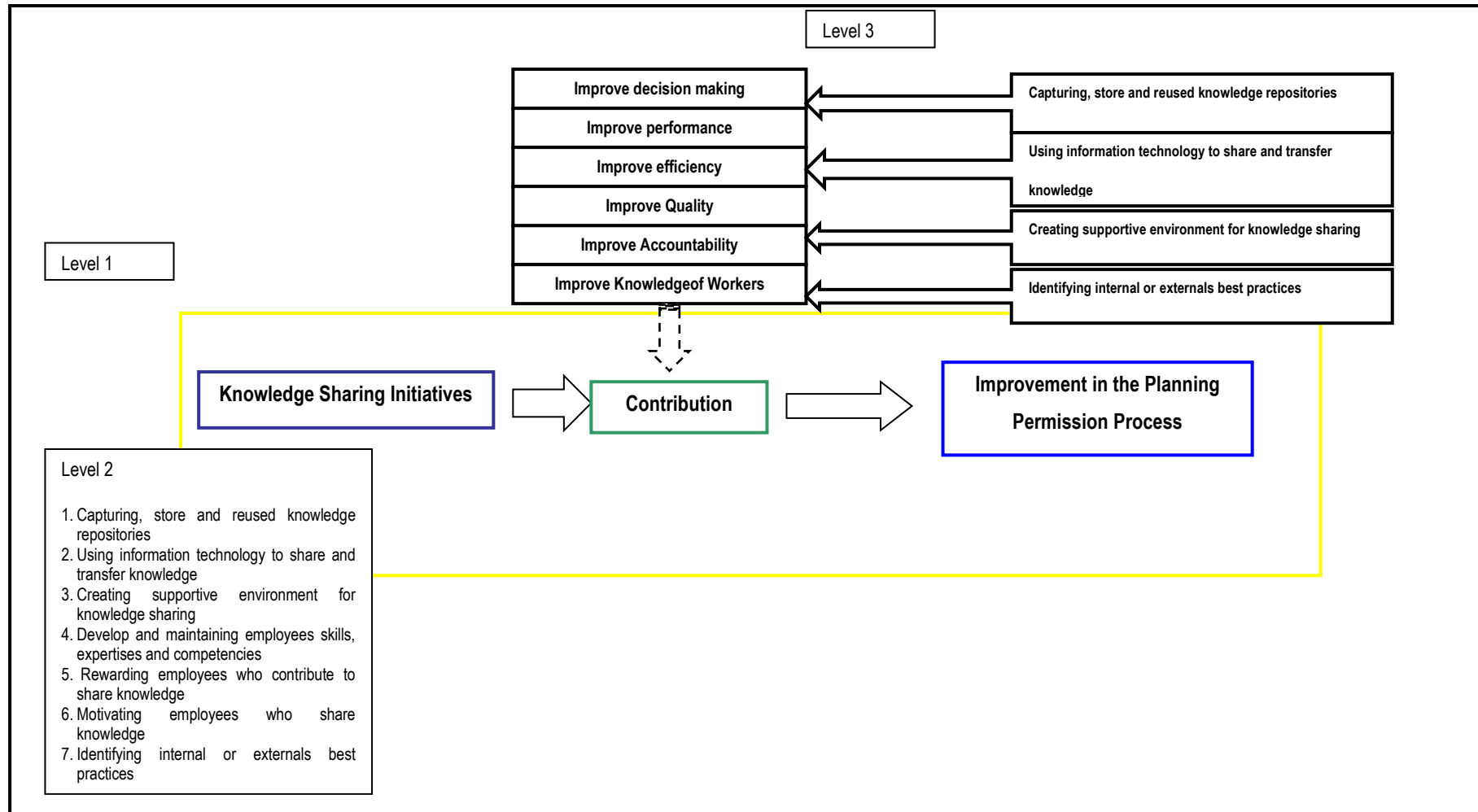


Figure 9-1 : A proposed conceptual framework for the improvement of planning permission process through KS

9.3 Development of a model of knowledge sharing initiatives in local authorities in Malaysia

The proposed model of knowledge sharing initiatives in local authorities consists of four main areas.

9.3.1 Knowledge sharing initiatives

This area of the model is dedicated to describe the lists of knowledge sharing initiatives in local authorities in Malaysia. The list of these KSI was obtained from the semi-structured interviews and questionnaires. The list comprises sixteen knowledge sharing initiatives in local authorities.

Table 9.3: List of knowledge sharing initiatives (KS tools and techniques) in planning permission process.

Knowledge sharing initiatives	KS tools and techniques
Capturing knowledge in repositories	Electronic office databases, non-electronic work manual, ISO documentation
Information technologies to share and transfer knowledge	Telephone, knowledge based expert system, OSC portal, Internet, intranet
Creating a supportive environment for knowledge sharing	Training, office layout, communities of practices, mentoring / coaching, job rotation, discussion (face-to-face meeting) and brainstorming
Identifying of internal or external best practices from which knowledge can be obtained	Project review/ lessons learned, formal meeting (OSC meeting and Local authority meeting)

9.3.2 Improvement in the planning permission process

Instead of contributing to the improvement of efficiency and knowledge of the worker (refer section 9.3.3), there are additional improvements in terms of work. The table below shows the additional improvements in the planning permission process derived from the semi-structured interviews.

Table 9.4: Additional improvements in the planning permission process

Additional Improvements in planning permission process	Number of interviewees (N=20)	Percentage (%)
Time saving to process planning permission	17	85 %
Number of error avoidance	15	75%
Speed up and precisely to find information	14	70%
Time taken to solve problem	12	60%

From the data, it is evident that additional improvements in the planning permission process by using KSI are time saving to process planning permission followed by avoiding the number of errors while processing the planning permission, speeding up and finding precise information and the time taken to solve problems.

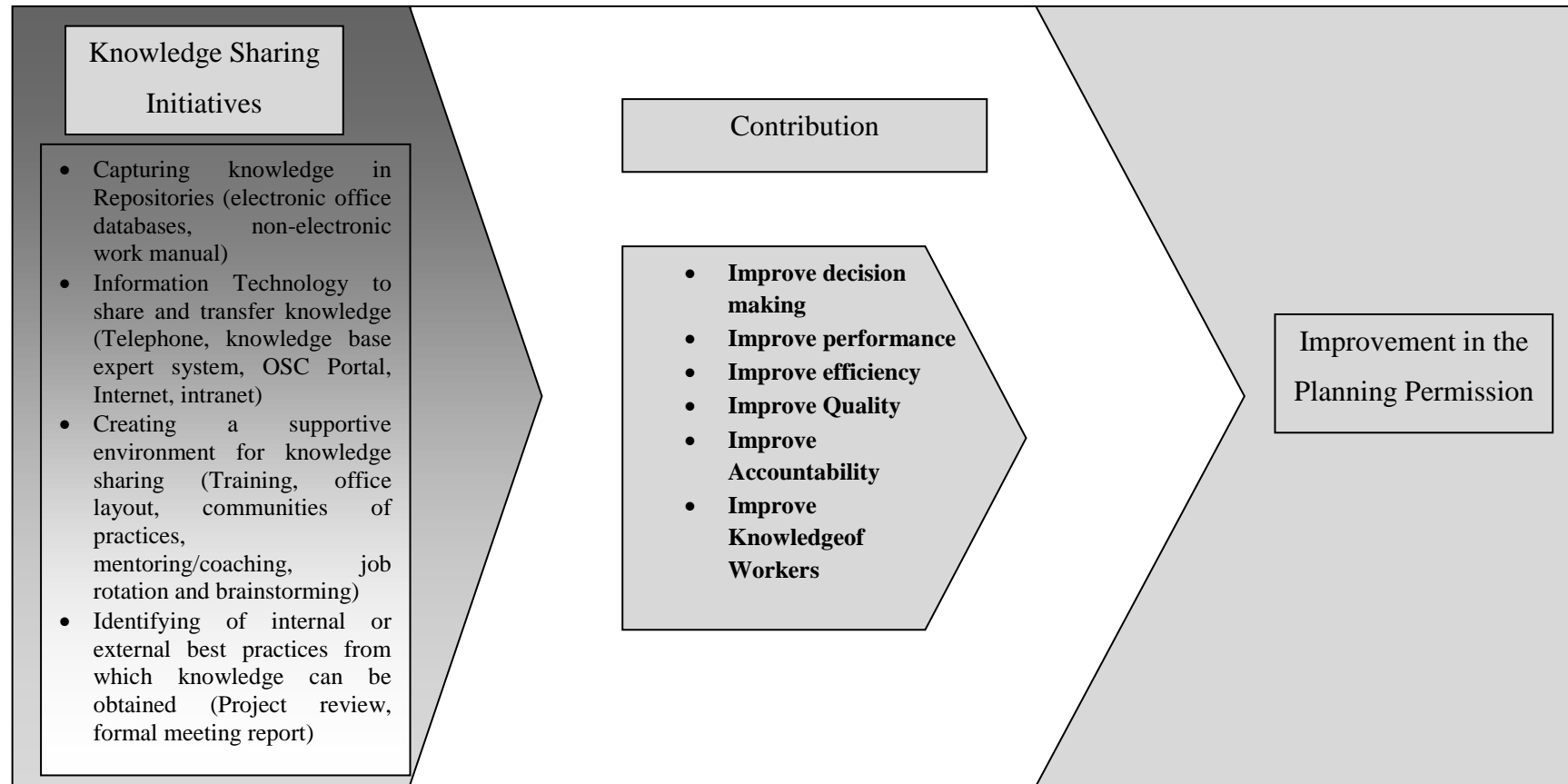


Figure 9-2 : A proposed model for the improvement of the planning permission process through KSI in local authorities in Malaysia

9.4 Development of a guidance for implementation of KSI in planning permission process

According to the Oxford Dictionary, guidance is ‘advice or information aimed at resolving a problem or difficulty, especially as given by someone in authority’. However, in the context of this research, guidance is a holistic approach to guide local authorities to establish and implement KSI in their organisations.

Many researchers have determined knowledge activities in their context: Rugless (1998) determined eight categories for KM focus activities; Liebowitz and Megbolugbe (2003) developed a framework to implement KM initiatives and Hari *et al.* (2005) identified five levels to capture knowledge using computers. Figure 9-3 shows the development of guidance for establishing the significance of KSI in the planning permission process.

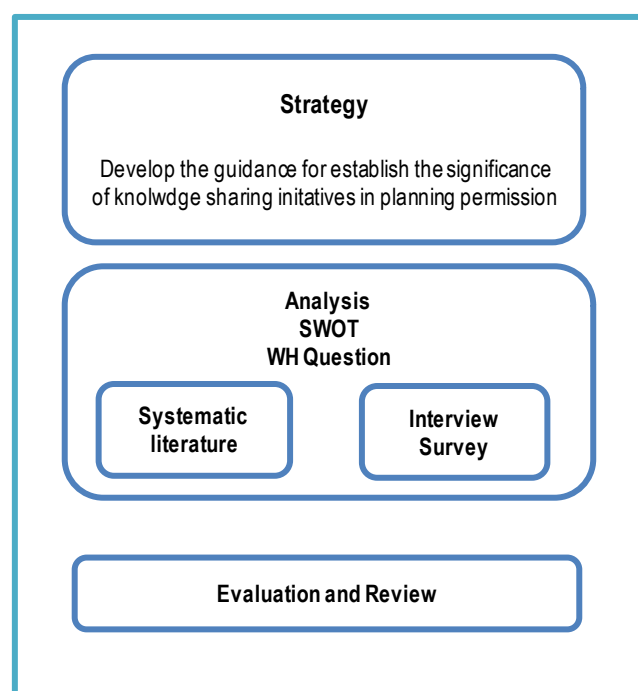


Figure 9-3: The development of guidance for establishing the significance of KSI in the planning permission process

9.4.1 Strategy

The proposed guidance was developed based on the process of KM. Different researchers have different perspectives in understanding the process of KM. The table below shows different perspectives concerning the process of KM.

Table 9.5: Different perspectives on process of KM

Author	Burk (1999)	Kamara <i>et al.</i> (2002)	Egbu <i>et al.</i> (2001)
Identify knowledge	Find/create	Locate and access	Creating Knowledge
Gathering and finding	Organised	Capture and store	Identifying Knowledge
Organising	Share	Represent	Strategising Knowledge
Share	Use/reuse	Share	Mobilising Knowledge
Apply and evaluating		Create new knowledge	Deploying Knowledge

9.4.2 Analysis

Ndlela and du Toit (2001) defined five steps for establishing a KM programme – enterprise analysis, external analysis, a suitable KM strategy and developing a plan for establishing a KM programme. The guidance has been set out using SWOT and wh-questions. SWOT analysis is a strategy method used to evaluate the strength, weaknesses, opportunities, and threats involved in establishing KSI in the planning permission process.

Strength – The strength of local authorities include their diversity. This refers to the role and responsibilities of local authorities (refer to section 2.3.3) and also the funding from other sources (refer section 2.3.2).

Weaknesses – This refers to resources in the local authority. Different types of local authority have different resources.

Opportunities – Employees are seen as important enablers when trying to establish significant KSI, their valuable knowledge, skill, and experience about the methods, processes and technology used to complete tasks.

Threats – There are trends for employees to retire earlier, to get a better job and for increasing mobility, which leads to the loss of knowledge. There is a need to identify knowledge resources as well as the proper role for KS programmes in managing knowledge resources.

Therefore, LAM should ensure that tacit knowledge is made explicit through KS and documenting knowledge.

The wh-questions were used in questions that contain an interrogative pro-form.

- What – asking for information about something. In this research this question defines the process of knowledge sharing in local authorities
- Why – asking for reason, asking what...for, i.e., why is this process important in the context of the planning permission process?
- Who – asking what or which person or people (subject) in this case the duties, responsibilities of top management, managerial and supporting staff
- Where – asking in or at what place or position?
- How – asking about manner
- When – asking about time. When should this process of KS occur?

9.4.3 Evaluation and review

In establishing the significance of KSI, evaluation and review are the main activities to ensure integration with other business processes. According to Cambell and Lucks (1997) the effectiveness of KM programmes is about defining what needs to be achieved and about motivating capable employees to want to achieve it. After all the information has been obtained regarding the success of KSI, the necessary modifications should be made from time to time to meet the current needs. Table 9.5 shows the guidance for establishing the significance of KSI in local authorities in Malaysia.

Table 9.6: The guidance for establishing the significance of KSI in local authorities in Malaysia

What	why	Who			Where	How	When
		Top Management	Managerial	Supporting staff			
Introduction of knowledge sharing initiatives	Introducing/awareness for this process to ensure that everyone in the organisation could know what is going on	<ol style="list-style-type: none"> 1. Establishment of strategy, objectives 2. Provide proper budgeting and allocation of resources 3. Creating a knowledge friendly culture <p>Supported by the organisation at all level including clear understanding about knowledge, knowledge sharing and process.</p>	<ol style="list-style-type: none"> 1. Support and promote sharing of knowledge 2. Provide additional motivation for staff to share knowledge 	<ol style="list-style-type: none"> 1. Participate of the process of KS 2. Employees know or clear that KS is a core value of the organisation 	Department level and organisational level	Mechanism for disseminating: <ol style="list-style-type: none"> 1. Formal Meeting 2. Notice board 3. Report 	At the earlier stage before this process start.
Identify knowledge	Identification of different type of knowledge (Personalisation and Codification) available to an organisation is the first step to understand how to manage KS	Monitor, leads assigned and appointed staff in process of identification of knowledge	<ol style="list-style-type: none"> 1. Identify source (unique/critical skill) for capturing knowledge 2. Exploiting employee's skills and competencies 3. Monitor knowledge source and compile and documented relevant knowledge 	Organisations needs to identify all source of knowledge and information so that it can be consolidated, store and share when required	Organisational knowledge can exist through organisational routine. Example: Embedded in document, guideline, procedure of planning.	<ol style="list-style-type: none"> 1. Internal and external networking 2. Formal Meeting 3. Project Review 4. Brainstorming 5. Electronic office databases 6. Non-electronic work manual document 7. ISO Documents 	Daily working process
Gathering and finding	<ol style="list-style-type: none"> 1. Knowledge workers are the most valuable asset in the organisation 2. Share knowledge and expertise in order to apply that knowledge to solve problem and exploit opportunities 	<ol style="list-style-type: none"> 1. Provide infrastructure: IT and Non IT infrastructure 2. Ensure effective utilisation of many important resources (People, Process and Technology) 	<ol style="list-style-type: none"> 1. Record the 'best' solutions to common problems and issues 2. Encourage collection, indexing and distribution the best practices and lessons learned 3. Apply KS tools (technologies) and techniques 	<ol style="list-style-type: none"> 1. Awareness in finding and understanding useable knowledge in the organisation 2. Develop relationship and trustworthy between co-worker 	<ol style="list-style-type: none"> 1. Working environment 2. Social gatherings for staff 3. Formal Meeting 4. Discussion 	Implementation of KS tools (technologies) and techniques Example: Telephone, knowledge base expert system, internet, OSC Portal, electronic databases, work manual, ISO Document etc.	<ol style="list-style-type: none"> 1. Daily working process 2. Outside office hour 3. Social gathering event

What	why	Who			Where	How	When
		Top Management	Managerial	Supporting staff			
Organising	The biggest effort in KS is the selection, documentation, filing, searching and finding of information	<ol style="list-style-type: none"> 1. Develop system intergrated into daily work process- KS seems to work best when it integrate to organisational life. 	<ol style="list-style-type: none"> 1. Identify existing and new knowledge in repositories 2. Determine whether they contain knowledge or data 3. Ensure that tacit knowledge is made explicit- documenting knowledge 	<ol style="list-style-type: none"> 1. Awareness of the need to seek out existing and new knowledge 		<ol style="list-style-type: none"> 1. OSC Portal 2. Knowledge base expert system (Planning approval system and Geographical Information System) 3. Internet 4. Intranet 5. Non-electronic work manual document 6. Project Review 	Daily working process
Share	The purpose of KS is to improve performance by making sure employees can share, access and apply the right knowledge at the right time and right place	<ol style="list-style-type: none"> 1. Encourage learning organisation environment- enhanced capacity to learn, adapt and sees every experience as opportunity to improve. 2. Environment of openness- in order for employees to create, share and use knowledge. 	<ol style="list-style-type: none"> 1. Encourage collaboration between department, organisation and intra- organisation. 2. Foster teamwork, CoP or other social forms of learning 3. Identify information technology to share and transfer knowledge 4. Creating KS environment 	<ol style="list-style-type: none"> 1. Employees have to redesign their mental model in order to support sharing and transfer of knowledge and expertise. 2. Enable to identify internal and external 	<ol style="list-style-type: none"> 1. Working environment 2. Social gathering event for staffs 3. Formal Meeting 4. Discussion 	Work with IT dept. to work towards share and transfer knowledge: create a process of capturing,	<ol style="list-style-type: none"> 1. Daily working process 2. Outside office hour 3. Social gathering event
Apply and evaluating	<ol style="list-style-type: none"> 1. Application of KSI's in organisation will improve decision making, performance, efficiency, quality accountability and knowledgeable of the workers. 2. This is important stage that continually review, test and validate KS initiatives to keep up with the latest knowledge in the discipline and discard the outdated 	<ol style="list-style-type: none"> 1. Align KS strategies and tactics with organisation direction. 2. Facilitate and monitor KS-related activities and programs and ensure evaluating 	<ol style="list-style-type: none"> 1. Establish teamwork and collaboration between department, organisation and inter- organisation. 2. Performing reforming the KS activities and program 3. Develop metric for measuring value-added benefits for KSI 	<ol style="list-style-type: none"> 1. Capable to converting and connecting data to knowledge, connecting people to knowledge, connecting people to people and connecting knowledge people. 2. Develop communication skills and social network 	1. Business operation / working environment	1. Performance measurement	1. Daily working process

9.5 Validation of the model for the improvement of the planning permission process through KSI and guidance of knowledge sharing initiatives in local authorities in Malaysia

The proposed model and guidance were finally validated using the questionnaire survey. Fifteen respondents were selected from various types of local authority. The officers that took part were those involved in the planning process (refer section 3.6). Heads of the Department of Planning, Heads of the Department of the One-Stop Centres and Planning Officers were the staff members that were identified. Table 9.6 shows the distribution of respondents according to the type of local authority.

Table 9.7: Number of participants involved in the validation of the model and guidance

City	Municipal	District	Total
5	6	4	15

The questionnaires were sent by email and were followed up over the telephone. The selection of respondents was based on two criteria.

- Getting permission during the semi-structured interview to participate in the validation of the model and guideline. Out of 20 interviewees only 13 were willing to participate. The choice of these respondents is because they are directly involved in one or more of the previous approaches of this research (semi-structured interviews/ email questionnaire survey) this was to ensure that they already had an understanding of the research study. This was also to achieve continuity and validity of the information in relation to the planning permission process.
- A combination of both Heads of Department and Planning Officers for feedback and validation was to ensure the concept of accuracy and reliability that appear to underpin the validity and reliability of the research findings (Winter, 2000).

9.5.1 Validation of the model for the improvement of the planning permission process through KSI

List of respondents for validation of the model shown in table 9.7.

Table 9.8: Number of participants involved in the validation of the model

Local Authorities	Managerial Categories	Grade	Codes	Level of Coverage			Comment
				Usefulness of the model	Appropriateness of this model	Content of the Model	
City	HDP	J52	V1	1	2	1	*
	HDP	J52	V2	1	1	2	
	HDO	J44	V3	1	1	2	*
	PO	J44	V4	1	1	2	
	PO	J41	V5	1	1	2	
Municipal	HDP	J44	V6	1	2	2	*
	HDP	J44	V7	1	1	2	
	HDP	J48	V8	1	1	2	*
	HDO	J41	V9	2	1	2	
	HDO	J44	V10	1	1	1	
	HDO	J41	V11	1	1	2	
District	HDP	J32	V12	1	1	1	*
	HDP	J32	V13	1	1	1	
	HDP	J32	V14	1	1	1	
	HDO	J41	V15	1	1	1	
Total				16	17	24	
Mean Score (Total / No. of respondents)				1.07	1.13	1.60	
Meaning – HDP -Head of Planning Department,HDO- Head of OSC,PO- Planning Officer Usefulness of the model – 1 (very useful), 2 (Useful), 3 (less useful) 4 (Not useful at all) Appropriate – 1 (Very appropriate), 2 (Appropriate), 3 (Less Appropriate), 4 (Not appropriate at all) Content of the model – 1 (Very good), 2 (good), 3 (Fair), 4 (poor)							

From the data it is evident that most of the respondents noted that:

1. Usefulness of the model – most of the respondents noted that this model is very useful for improvement of the planning permission process through KSI, where the mean value indicates 1.07.
2. Appropriateness of the model – most of the respondents noted that this model is very appropriate for use in the context of the planning permission process with a mean value of 1.13.
3. Content of the model – again the participants noted that the content of the model is very good with a mean value 1.60

Model development and validation

Overall, many of the respondents commented that the model could be used as a systematic framework to manage and monitor the planning permission process. The following are some of their comments:

The interviewee of V1 said that, *“This model look very good.....good effort, tries to link and model knowledge sharing initiatives within the planning permission process”*.

The interviewee of V6 said that, *“The KSI model looks interesting to implement, however, details of the model for every practical step need to be explained thoroughly”*.

The interviewee of V12 said that, *“This model looks very useful...however, it needs cooperation between top management and employees to implement and ensure the success of KSI in the planning permission process”*.

9.5.2 Validation of the guidance for knowledge sharing initiatives in the planning permission process in local authorities in Malaysia

Table 9.9: Number of participants in validation of the guidance

Local Authorities	Managerial Categories	Grade	Codes	Level of Coverage			Comment
				Usefulness of this guidance	Appropriateness of the guidance	Content of the guidance	
City	HDP	J52	G1	1	2	1	
	HDP	J52	G2	1	1	1	*
	HDO	J44	G3	1	1	1	
	PO	J44	G4	1	1	1	
	PO	J41	G5	2	1	2	
Municipal	HDP	J44	G6	1	2	2	*
	HDP	J44	G7	1	1	1	
	HDP	J48	G8	1	2	2	
	HDO	J41	G9	2	1	1	
	HDO	J44	G10	2	1	1	
	HDO	J41	G11	1	1	2	
District	HDP	J32	G12	1	1	1	
	HDP	J32	G13	1	1	1	*
	HDP	J32	G14	1	1	2	
	HDO	J41	G15	1	1	1	
Total				18	18	20	
Mean Score (Total / No. of respondents)				1.20	1.20	1.33	
Meaning – HDP- Head of Planning Department, HDO- Head of OSC, PO- Planning Officer Usefulness of the model – 1 (very useful), 2 (Useful), 3 (less useful) 4 (Not useful at all) Appropriate – 1 (Very appropriate), 2 (Appropriate), 3 (Less Appropriate), 4 (Not appropriate at all) Content of the model- 1 (Very good), 2 (good), 3 (Fair), 4 (poor)							

From the data it is evident that most of the respondents noted that:

1. Usefulness of the guidance – most of the respondents noted that this guidance is very useful for the improvement and establishment of KSI in the planning permission process through KSI, where the mean value indicates 1.20.
2. Appropriateness of the guidance – most of the respondents noted that this guidance is very appropriate to use in the context of the planning permission process with a mean value of 1.20.

3. Content of the guidance –again the participants noted that the content of the model is very good with a mean value 1.33.

Overall, many of the respondents commented that the guidance could be used as a systematic framework to manage, monitor and use as a resource in the planning permission process. The following are some of their comments:

The interviewee of G2 said that, *“This guidance is very clear and covers all aspects of duties and responsibilities of staff including top management levels, managerial levels and supporting levels”*.

The interviewee of G6 said that, *“The guidance looks interesting to implement, however, the detailswe have problems with the resources like money, number of staff also need to be highlighted”*.

The interviewee of G13 said that, *“The guidance is very simple and straightforward but we are concerned about the financial budget, resources and commitment from all staff to support this programme”*.

9.6 Other issues for consideration

There are a number of reasons why KSI may not work in some local authorities. Some of the issues will be explored in this section. The issues faced by local authorities areas follows:

- Lack of resources and infrastructure –as mentioned earlier there is a lack of resources among local authorities, some of them have good resources compared to others. In this context, MHLG has to endeavour to overcome this issue through allocating adequate resources, i.e., financial and reallocation of staffing.
- Restricted communication flow and confidential status of documentation –the management of local authorities have to create an open communication flow without restriction between diverse organisational levels,i.e., small units to facilitate better

Model development and validation

direct communication flow. Subsequently, for the status of documentation, establish a no limits environment between hierarchies or levels, i.e., by assigning project team collective responsibility for confidentiality, as they have to maintain this status.

9.7 Summary

This chapter presented the validation of the proposed model for the improvement of the planning permission process through KSI and the guidance for establishing the significance of KSI for local authorities in Malaysia. Following this, the final result for both the model and guidance were presented. The final model has covered the improvement and additional improvement and also measured the impact of KSI. In addition, the final guidance has covered the main topic including the duties, responsibilities, where to take place, methods to implement and when to implement. Finally, issues, such as resources like staffing, financial, infrastructure and those pertaining to confidential status of documents have also been discussed.

CHAPTER 10. CONCLUSIONS AND RECOMMENDATIONS

10.1 Introduction

This chapter concludes this thesis; it starts with a brief summary of the overall findings of the research, followed by limitations and a self-critical analysis and recommendations for further works. The last section of the chapter presents a reflection and the lessons learned as a researcher.

10.2 The Research Process

The aim of this research was to establish the significance of knowledge sharing initiatives in the planning permission process and to develop guidance in this regard for local authorities in Malaysia. The rational for undertaking this research was the need for a well-defined and systematic method for managing knowledge, especially tacit and explicit knowledge in the planning permission process. To fulfil this need of the research, the researcher developed the research question; ‘to what extent do knowledge sharing initiatives impact on the planning permission process and how is this impact best conceptually modelled and presented’.

This research started with a discussion on the problem statement, aim and objectives, and review of literature in the context of local authorities in Malaysia and knowledge sharing, research methodology adopted in this research and findings from the semi-structured interviews and questionnaire survey. The aim was achieved through several specific objectives derived from research questions including:

- a. To explore the nature of knowledge sharing tools and techniques in local authorities in the context of the planning permission process.
- b. To ascertain and document the frequency of use and extent of use of the main knowledge sharing tools and techniques in local authorities and their efficacy in the context of the planning permission process.

Conclusion and recommendation

- c. To ascertain the extent to which knowledge typology and different contexts impact upon the use and exploitation of knowledge sharing tools and techniques, and the efficacy of these knowledge sharing tools and techniques with respect to the planning permission process.
- d. To investigate and document the main challenges and critical success factors for effective knowledge sharing in local authorities with respect to the planning permission process.
- e. To identify and appraise the impact of organizational structure, culture and motivational constructs in the effective sharing of knowledge in local authorities of various sizes with respect to the planning permission process.
- f. To appraise organisational resource implications of effective knowledge sharing in local authorities with respect to the role they play in contributing to the planning permission process.
- g. To measure the impact on, and contribution of knowledge sharing initiatives in improving the planning permission process.
- h. To develop and validate a conceptual model of knowledge sharing initiatives in local authorities in the context of the contribution they make to the planning permission process.

The specific tasks undertaken in this research, with respect to the research objectives are summarised below.

10.3 Conclusion

10.3.1 To explore the nature of knowledge sharing tools and techniques in local authorities in the context of the planning permission process

The literature review and current practices on the current planning permission process revealed that the nature of knowledge sharing technologies (tools) and technologies offers wide range accordingly with the types of knowledge used and knowledge domain at each sub process in the planning permission process.

Instead of tacit and explicit knowledge, the knowledge domain in the planning permission process is important in identifying the use of knowledge sharing tools and techniques. Below are the types of knowledge domain used in the planning permission process:

- Planning knowledge
- Legislative knowledge
- Environmental knowledge
- Urban design knowledge
- Technology knowledge
- Process, social and experiment knowledge
- Communication knowledge
- Negotiation knowledge

10.3.2 To ascertain and document the frequency of use and extent of use of the main knowledge sharing tools and techniques in local authorities and their efficacy in the context of the planning permission process

The analysis of qualitative and quantitative data was undertaken to address the second objective of this current research, which is ‘to ascertain and document the frequency of use and extent of use of the main knowledge sharing technologies (tools) and techniques in local authorities and their efficacy in the context of the planning permission process’ revealed four main knowledge sharing technologies (tools) and techniques in present use.

Conclusion and recommendation

The frequency of use of KS technologies (tools) and techniques are:

KS technologies (tools)

- Telephone
- Knowledge based expert system (planning approval system and geographical information system)
- Electronic office databases and
- Internet

KS techniques

- Non-electronic work manual document
- Project reviews
- Communities of practice
- Mentoring and coaching

Furthermore, the research revealed the effectiveness of use of KS technologies (tools) and techniques and present use to be:

KS technologies (tools)

- Telephone
- Internet
- Electronic office databases
- Knowledge based expert system (planning approval system and geographical information system)

KS techniques

- Project reviews
- Training
- Mentoring and coaching

Conclusion and recommendation

- Non-electronic work manual document

Furthermore, the extent of use of the KS technologies (tools) and techniques are described below:

KS technologies (tools)

- Telephone – communication medium and sharing knowledge
- Internet – searching information and sending emails
- Intranet – facilitate work in group or group email within department
- Knowledge based expert system – store, analyse, manage and present data
- Office database – keep applicant's information
- OSC Portal – an electronic submission and processing for development control

KS techniques

- Brainstorming – used with high impact projects, i.e., foreign investors and government projects
- Job rotation – staff will be exchanged or rotated in all units in the department, which is intended to expose them to relevant knowledge
- Coaching and mentoring – to guide new members and any changes of regulation from MHLG and local authority
- Official meeting – to get feedback and review from other departments within organisation and other agencies
- Communities of practice – develop a discussion group, i.e., discuss any dispute regarding the application
- Non-electronic document – as reference or to check procedure for planning permission process
- Project review – as a reference for any dispute for the planning permission process

From the findings it shows that the telephone is the most frequently, effective and extensively used KS technology (tool) and for KS techniques vary depending on the sub process of the planning permission process.

10.3.3 To ascertain the extent to which knowledge typology and different contexts impact upon the use and exploitation of knowledge sharing tools and techniques, and the efficacy of these knowledge sharing tools and techniques with respect to the planning permission process

The analysis of the quantitative data shows that for exploitation of use and gain benefit from KS technologies (tools) and techniques are:

KS technologies (tools)

- Knowledge based expert system (planning approval system and geographical information system)
- Electronic office databases
- Internet
- Intranet

KS techniques

- Communities of practice
- Training
- Brainstorming
- Mentoring and coaching

It is concluded that knowledge based expert systems for KS technologies (tools) require the consideration and attention of LAM. Furthermore, people tend to prefer familiarity over change and incorporating new technologies into the workplace takes time and effort. A proper IT infrastructure, training programme, and support from management can help to exploit the use of knowledge-based expert systems. Exploitation of explicit knowledge, which is stored in a database system, provides benefit, and, at the same time, it can speed up the process of evaluation of the application for the planning permission process.

Knowledge sharing techniques are intangible activities that are difficult to effectively supervise or force out of people. HRM should grasp the opportunities to promote and encourage activities for knowledge sharing. People tend to share freely with their colleagues

if there is a platform or medium to do so. These are some of the activities that can exploit or promote KS:

- In-house training or external training programmes between planning departments in local authorities.
- Develop working group within department to create same interest. A strategy for learning from team experience by organising the process of knowledge creation and transfer.

10.3.4 To investigate and document the main challenges and critical success factors for effective knowledge sharing in local authorities with respect to the planning permission process

From analysis of the quantitative and qualitative data the main challenges and critical success factors for the effective knowledge sharing are as described below.

Main Challenges for effective knowledge sharing:

1. Challenges of using IT application
2. Encourage KS and supportive culture
3. Management support and leadership
4. Hierarchical and bureaucratic organisational structure

Similarly, the quantitative findings revealed four factors that constitute the main challenges for effective knowledge sharing.

1. Leadership commitment in promoting KS
2. Exploiting employee's skill where they are willing to share
3. Using IT application
4. Relationship between co-workers and leader

Critical success factors for the effective knowledge sharing, from the qualitative data findings include:

1. Knowledge Management Strategy
2. Leadership support and commitment

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3. Organisational culture – difficult to change employees attitude
4. Training and education

And the quantitative findings revealed four factors

1. Support from leaders in promoting the sharing of knowledge
2. Clear policy/strategies regarding the sharing of knowledge
3. Willingness of employees to work with others and share knowledge to their mutual benefit
4. Organisation's information and authority flow based on power distance affects sharing of knowledge within organisation

10.3.5 To identify and appraise the impact of organisational structure, culture and motivational constructs in the effective sharing of knowledge in local authorities of various sizes with respect to the planning permission process

The research progressed to analyse the impact of organisational structure, culture and motivation in the effective sharing of knowledge in local authorities of various sizes. Local authorities in Malaysia are divided into three types of authority. Even though there are three types of local authority, most of the authorities are tied by government regulations, procedures and even the structure of the organisation made by the Public Service Department. Therefore, there are few differences in the context of organisational structure, culture and motivation. The results from the qualitative and quantitative data show that:

1. Impact of Organisational structure on the effective sharing of knowledge in the planning permission process includes:
 - Top management decision making
 - Rules and procedures
 - Occupational specialisation and task differentiation
 - Restricted document (Confidential status of document)

Conclusion and recommendation

2. Impact of culture on the effective sharing of knowledge in the planning permission process includes:

- Attitude of leaders to open discussion with employees
- Teamwork among the workers
- Relationship between co-workers
- Trust between employees

3. Impact of motivation on the effective sharing of knowledge in the planning permission process includes:

- Employees skill and competencies (Willingness and able to share knowledge)
- Relationship between co-worker and leaders
- Given special recognition and enhancing expertise

10.3.6 To appraise the organisational resource implications of effective knowledge sharing in local authorities with respect to the role they play in contributing to the planning permission process

The analysis of the quantitative data for the sixth objective of this current research shows that the organisational resource implications of effective KS in local authorities with respect to the role they play in contributing to the planning permission process include:

- Leaders' commitment
- Employees skills and competencies
- Relationship between co-workers
- Trust
- Allocation of appropriate employees
- Allocation financial budgeting

10.3.7 To measure the impact/contribution of knowledge sharing initiatives in improving the planning permission process

The level of contribution of knowledge sharing initiatives in improving the planning permission process includes:

- Capturing knowledge in repositories
- Identifying internal or external best practices from which knowledge can be obtained
- Information Technology to share and transfer knowledge
- Creating a supportive environment for knowledge sharing

10.3.8 To develop and validate a conceptual model of knowledge sharing initiatives in local authorities in the context of the contribution they make to the planning permission process

Establishing the significance of knowledge sharing initiatives is a complex process; the impact or contributions differ according to the sub-process in the planning permission process. There is a need for more holistic approaches by MHLG and local authorities for KSI. In response to this, a comprehensive KSI model and guidance were developed in this research in order to guide local authorities to establish the significance of knowledge sharing initiatives in local authorities in Malaysia.

The developed model clearly shows the contribution of KSI in the improvement of the planning permission process. In addition, in order to continuously achieve goals and keep on improving, KSI have to be measured. This is to ensure the degree to which LAM effectively applies KSI. The impact of KSI is well documented by the list of performance measures and every attempt has been made to align these KSI in the planning permission process. Finally, the model has been developed as an iterative process that can improve the planning permission process. The successful implementation of this model, however, needs careful consideration from both parties (MHLG and local authorities) in establishing KSI by

providing effective governance for KS practices, fostering a knowledge-supportive culture and accelerating the learning process by pursuing a broad range of knowledge sharing activities.

10.4 Recommendations for Further Research

This research has made many contributions in the area of knowledge sharing initiatives for local authorities in Malaysia as well as contributing to the theoretical nature of other government agencies interested in establishing the significance of KSI. The following recommendations are worthy of note and have been divided into local authorities and academic.

10.4.1 Recommendations for local authority

- Although local authorities have invested in more sophisticated technologies, people tend to prefer familiarity to change and incorporating new technologies into the workplace takes time and effort. It is recommended that local authorities and MHLG must recognise the benefit of KS technologies (tools), and, more specifically, according to the organisational requirements. IT infrastructure needs to be established, and, at the same time, provide a proper training programme that facilitates the exploitation and extent of use of KS technologies (tools).
- KS techniques are more convenient and less costly compared to technologies making them affordable to most organisations. This provides the opportunity for HRM to delineate clearly the resources to be dedicated to tacit and explicit knowledge in the organisation by identifying the key activities of KS, forming the KM team, performing job rotation across strategy groups and facilitating the dissemination of learning through workshops, in-house training programmes and conferences.
- Developing a new or modified organisational structure is a complicated issue in LAM as they have their own hierarchy. Moreover, a bureaucratic structure and hierarchical

Conclusion and recommendation

organisation inhibits or slows down most sharing practices, hence, communication and knowledge flow are confined to a select group of individuals within the organisation. Therefore, to overcome and minimise hierarchy in the organisation:

- a. The top management and managerial level should have open communication through real time exchange and feedback, which can be facilitated through dialogue and open discussion.
 - b. The combination of the formal organisational structure with a non-hierarchical and self-organising organisational structure would improve the sharing of knowledge capabilities.
 - c. Effective human resources management policies by attracting and keeping people with abilities, behaviour and competencies that add value to the LAM knowledge stock must be targeted.
 - d. Top management or the President of the local authority must encourage the human resources to be active in the knowledge sharing process and coordinate the relationships between the function of human resources and knowledge sharing.
- Attitude and behaviour are considered to be an important element that affects the sharing of knowledge, and can be changed by providing a platform that concentrates on knowledge as the core competence. Education and training (internal or external) play a significant role in any organisation for organisational change. Education and training programmes should cover all levels of employees, including the managerial level and supporting level. When employees are given enough training, they will certainly develop skills and be able to translate them into action, and, consequently, share their knowledge with other officers in the organisation. However, it is important that any changes need to be developed in line with the existing organisational culture.
 - Employee motivation is a continuing challenge at work. Particularly in work environments that do not emphasise employee satisfaction. There are various ways in which a manager or leader can create a work environment that will foster and engender employee motivation;
 - a. Communicate responsibly and effectively any information that employees need to perform their jobs efficiently.

Conclusion and recommendation

- b. Implement an open door policy for staff members to talk, share ideas, and discuss concerns.
 - c. Provide the opportunity for employees to develop their skills and abilities.
 - d. Provide more authority for the employees to self-manage and make decisions.
Within the clear framework of the planning permission process and ongoing effective communication, delegate decision making after defining the limits and boundaries.
- Irrespective of the type of local authority, every attempt should be made to introduce a clear organisational goal. Moreover, the function of the human resources management should be strengthened by encouraging staff members to assume ownership of knowledge sharing efforts, be involved with the development and quality control of the knowledge base, and to ensure that knowledge sharing enhances organizational objectives incentives should be put in place to encourage knowledge creation and sharing.
- The effectiveness of knowledge sharing in an organisation is associated with different dimensions of leadership and commitment. Leadership is also an important function of management, which helps to achieve the organisational goals and mission. Therefore, the following points justify the importance of leadership being proactive in exploiting the process of knowledge sharing through:
 - a. Initiates action – communicate or discusses the policies and plans with subordinates
 - b. Commitment and motivation – guiding role for the subordinates (instructing the subordinates in the way they have to share knowledge and give them benefits)
 - c. Develop and building moral – moral denotes willing cooperation of the employees in their work and taking them into confidence and winning their trust.
 - d. Coordination – coordination can be achieved through reconciling personal interests with organizational goals.
- Normally, management is concerned with attending to the employees and accomplishing smooth execution of the planning permission process in as short a time

as possible, while the work culture does not care much about knowledge sharing. The workload is very heavy for the employees, which hinders or prevents them from sharing knowledge with others. Productivity and efficiency will reduce if the management ignores communication or the relationships between co-workers, commitment and support from top management and using suitable incentives for encouraging employees.

- At the same time, LAM and MHLA should provide or ensure that dedicated resources are available to cover essential jobs related to the planning permission process. They should ensure that they have contingency plans in place to deal with resource constraints like staff shortage.
- Developing effective job descriptions for employees is significant for organisation success. In fact, this will help people feel as though they know what is expected from them and know how to search people if they have any problem that is related to their work.

10.4.2 Recommendation for academics and for further work

- The present research was limited to a single public organisation. In order to have a complete picture of how knowledge sharing is managed, further empirical work in other government agencies should be explored. Findings from the research will help to further explain the involvement of other government agencies in achieving the government's goals, which is intended to transform Malaysia into a knowledge-based economy.
- The present research does not cover political directives and their relationship, impact and implications for KSI. More research on the political aspects should be undertaken in depth. The results might provide a clearer understanding on how political aspects could either enhance or restrict knowledge sharing within and between organisations.
- The present research could serve as a starting point for a more in-depth research, encompassing a larger sample in multiple organisations, i.e., research should involve agencies under the ministry or other government agencies, as the core business (particularly in service delivery) is the same. How knowledge is shared, created and

transferred between these organisations should provide clear evidence on the effectiveness of the current strategy.

- The research methodology and strategy in this research could be replicated in different organisations or government agencies. This should lead to the generation of benchmark data and best practices for establishing the significance of KSI in the public sector.
- The guidance for establishing the significance of knowledge sharing initiatives can be further developed for other government agencies as well as the private sector (e.g., architects or engineers) in order to establish KSI in their organisation.

10.5 Limitations and Self Critical Analysis

Although the results of this research are interesting, they should be viewed in light of the limitations.

- The number of respondents, interviewees and survey data obtained from the survey can be categorised as small if comparing to the population of local authorities in Malaysia. However, this was inevitable for several reasons as was made apparent earlier in the methodology:
 - a. Time difference between the UK and Malaysia to conduct interviews, even though the researcher had made appointments beforehand. Most of the interviewees were on a very tight time schedule due to work in preparing for the future and the following years planning and meetings.
 - b. The culture of the public sector (especially towards the end of the year) to get everybody to respond as they were tied up in preparing the following year's budget, attending training and meetings.
 - c. Ignorance and reluctance to participate in the survey were also evident in this research.

Conclusion and recommendation

A larger number of responses would probably yield more accurate findings, and, therefore, future research could replicate this research, with the hope of attracting more participants.

- From the perspective of the overall research period, the research has served as a training process. The researcher now has a better understanding of the research process than when he started. The benefits derived from conducting this research include:
 - a. The importance of seeing the big picture in knowledge management and knowledge sharing
 - b. The importance of appropriate research methodology and research strategy
 - c. The sequence of research strategy
 - d. The ability to engender cooperation among the research participants
 - e. An understanding of research ethics and the ability to maintain participants' confidentiality

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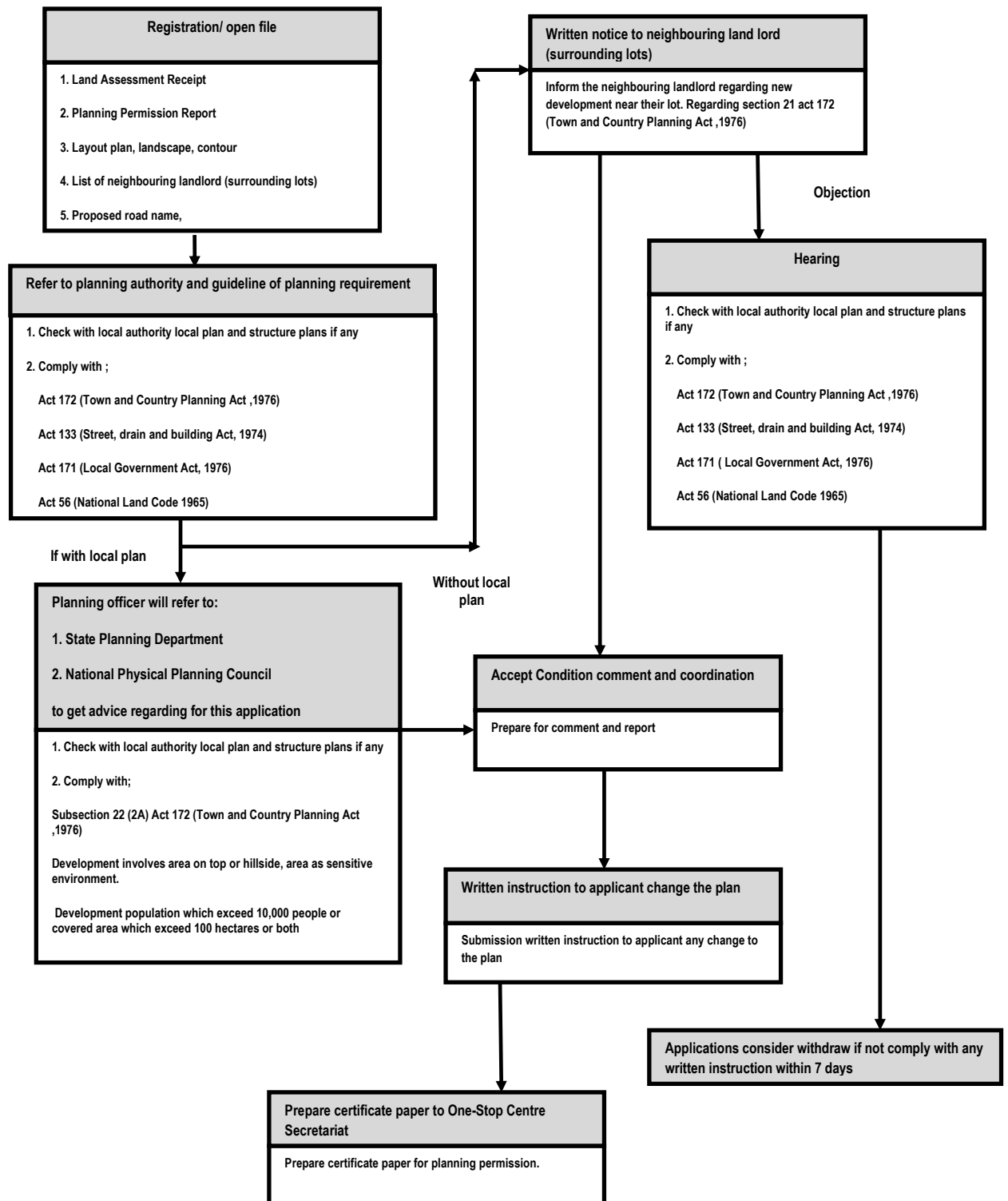
APPENDICES

Appendix 1: List of local authorities in Malaysia

	Local Authorities		Local Authorities
	Johor		Negeri Sembilan
1	Majlis Bandaraya Johor Bahru	42	Majlis Perbandaran Seremban
2	Majlis Perbandaran Batu Pahat	43	Majlis Perbandaran Nilai
3	Majlis Perbandaran Johor Bahru Tengah	44	Majlis Perbandaran Port Dickson
4	Majlis Perbandaran Kluang	45	Majlis Daerah Jelevu
5	Majlis Perbandaran Muar	46	Majlis Daerah Jempol
6	Majlis Perbandaran Pasir Gudang	47	Majlis Daerah Kuala Pilah
7	Majlis Perbandaran Kulai	48	Majlis Daerah Rembau
8	Majlis Daerah Labis	49	Majlis Daerah Tampin
9	Majlis Daerah Mersing		
10	Majlis Daerah Pontian		Pahang
11	Majlis Daerah Segamat	50	Majlis Perbandaran Kuantan
12	Majlis Daerah Simpang Renggam	51	Majlis Perbandaran Temerloh
13	Majlis Daerah Tangkaka	52	Majlis Perbandaran Bentong
14	Majlis Daerah Yong Peng	53	Majlis Daerah Cameron Highlands
15	Majlis Daerah Kota Tinggi	54	Majlis Daerah Jerantut
		55	Majlis Daerah Lipis
	Kedah	56	Majlis Daerah Maran
16	Majlis Bandaraya Alor Star	57	Majlis Daerah Pekan
17	Majlis Perbandaran Langkawi	58	Majlis Daerah Raub
18	Majlis Perbandaran Sungai Petani	59	Majlis Daerah Rompin
19	Majlis Perbandaran Kulim	60	Majlis Daerah Bera
20	Majlis Daerah Baling		
21	Majlis Daerah Bandar Baharu		Perak
22	Majlis Daerah Kubang Pasu	61	Majlis Bandaraya Ipoh
23	Majlis Daerah Padang Terap	62	Majlis Perbandaran Manjung
24	Majlis Daerah Pendang	63	Majlis Perbandaran Kuala Kangsar
25	Majlis Daerah Sik	64	Majlis Perbandaran Taiping
26	Majlis Daerah Yan	65	Majlis Perbandaran Teluk Intan
		66	Majlis Daerah Kampar
	Kelantan	67	Majlis Daerah Gerik
27	Majlis Perbandaran Kota Bharu Bandaraya Islam	68	Majlis Daerah Kerian
28	Majlis Daerah Ketereh	69	Majlis Daerah Batu Gajah
28	Majlis Daerah Tanah Merah	70	Majlis Daerah Lenggong
30	Majlis Daerah Bachok	71	Majlis Daerah Pengkalan Hulu
31	Majlis Daerah Gua Musang	72	Majlis Daerah Perak Tengah
32	Majlis Daerah Jeli	73	Majlis Daerah Tanjong Malim
33	Majlis Daerah Dabong	74	Majlis Daerah Tapah
34	Majlis Daerah Kuala Krai	75	Majlis Daerah Selama
35	Majlis Daerah Machang		
36	Majlis Daerah Pasir Mas		Perlis
37	Majlis Daerah Pasir Puteh	76	Majlis Perbandaran Kangar
38	Majlis Daerah Tumpat		
			Pulau Pinang
	Melaka	77	Majlis Perbandaran Pulau Pinang
39	Majlis Bandaraya Melaka Bersejarah	78	Majlis Perbandaran Seberang Perai
40	Majlis Perbandaran Alor Gajah		
41	Majlis Perbandaran Jasin		

	Local Authorities		Local Authorities
	Selangor	121	Majlis Daerah Serian
79	Majlis Bandaraya Shah Alam	122	Majlis Daerah Simunjan
80	Majlis Bandaraya Petaling Jaya	123	Majlis Daerah Sri Aman
81	Majlis Perbandaran Ampang Jaya	124	Majlis Daerah Subis
82	Majlis Perbandaran Kajang		
83	Majlis Perbandaran Klang		Sabah
84	Majlis Perbandaran Selayang	125	Dewan Bandaraya Kota Kinabalu
85	Majlis Perbandaran Subang Jaya	126	Majlis Perbandaran Sandakan
86	Majlis Perbandaran Sepang	127	Majlis Perbandaran Tawau
87	Majlis Daerah Hulu Selangor	128	Majlis Daerah Beaufort
88	Majlis Daerah Kuala Langat	129	Majlis Daerah Beluran
89	Majlis Daerah Kuala Selangor	130	Majlis Daerah Keningau
90	Majlis Daerah Sabak Bernam	131	Majlis Daerah Kinabatangan
		132	Majlis Daerah Kota Belud
	Terengganu	133	Majlis Daerah Kota Marudu
91	Majlis Bandaraya Kuala Terengganu	134	Majlis Daerah Kuala Penyu
92	Majlis Perbandaran Kemaman	135	Majlis Daerah Kunak
93	Majlis Perbandaran Dungun	136	Majlis Daerah Lahad Datu
94	Majlis Daerah Besut	137	Majlis Daerah Nabawan
95	Majlis Daerah Hulu Terengganu	138	Majlis Daerah Papar
96	Majlis Daerah Marang	139	Majlis Daerah Penampang
97	Majlis Daerah Setiu	140	Majlis Daerah Ranau
		141	Majlis Daerah Semporna
	Wilayah Persekutuan	142	Majlis Daerah Sipitang
98	Dewan Bandaraya Kuala Lumpur	143	Majlis Daerah Tambunan
		144	Majlis Daerah Tenom
	Sarawak	145	Majlis Daerah Tuaran
99	Dewan Bandaraya Kuching Utara	146	Lembaga Bandaran Kudat
100	Majlis Bandaraya Kuching Selatan		
101	Majlis Bandaraya Miri		
102	Majlis Perbandaran Padawan		State Government carry out its function as local authority
103	Majlis Perbandaran Sibu	147	Perbadanan Putrajaya (WPKL)
104	Lembaga Kemajuan Bintulu	148	Perbadanan Labuan (WPKL)
105	Majlis Daerah Bau	149	Lembaga Bandaran Johor Tenggara (Johor)
106	Majlis Daerah Betong	150	PBT Taman Perindustrian Hi-Tech Kulim (Kedah)
107	Majlis Daerah Dalat dan Mukah	151	Lembaga Pembangunan Tioman (Pahang)
108	Majlis Daerah Kanowit		
109	Majlis Daerah Kapit		
110	Majlis Daerah Lawas		
111	Majlis Daerah Limbang		
112	Majlis Daerah Luar Bandar Sibu		
113	Majlis Daerah Lubuk Antu		
114	Majlis Daerah Lundu		
115	Majlis Daerah Maradong dan Julau		
116	Majlis Daerah Marudi		
117	Majlis Daerah Matu dan Daro		
118	Majlis Daerah Samarahan		
119	Majlis Daerah Saratok		
120	Majlis Daerah Sarikei		

Appendix 2: Planning Permission Process



Appendix 3: Postal Questionnaires

Survey Questionnaire On Knowledge Sharing Initiatives in Malaysian Local Authorities

Ref:

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Return to:

Othman Mohamed

Room 403, Maxwell Building, School of Built Environment

The University of Salford, Greater Manchester

M5 4WT, United Kingdom

Email: O.Mohamed@edu.salford.ac.uk

Aim of the Questionnaire Survey

As a part of my ongoing PhD research in Knowledge Sharing Initiatives, a survey is being conducted to explore Knowledge Sharing initiatives in the planning permission process in local authorities in Malaysia with a view to improving the process. Hopefully knowledge sharing initiatives in the planning permission process in local authorities will enhance professionalism and government services in future.

Questionnaire Survey Instructions

There are no right or wrong answers to the questions in this survey. Select the most appropriate answer by using a tick (X) for each question based on your view/experience

There may be questions that appear irrelevant or impertinent. However, it is necessary in this study that all questions are answered, as the questionnaire is designed to achieve particular research objectives. If there are questions that you are unwilling or unable to answer, skip them and continue with the remaining questions.

Please remember that both your identity and the organisation for which you work will remain strictly confidential.

Definition of Knowledge Sharing:

Knowledge sharing is a process in which individuals, groups or departments in Malaysian Local Authorities exchange or share their knowledge (tacit or explicit knowledge), and, together, create new knowledge and share an understanding of their work through the whole department

Definition of Knowledge Sharing Initiatives:

Knowledge Sharing Initiatives are an organisation's approach to managing its knowledge that includes both human (soft) and system (hard) Bishop *et al.* (2008).

Section A: Demographic Information

Please kindly tick (✓) the box that best represents your organisation (local authority)?

<input type="checkbox"/>	City	<input type="checkbox"/>	Municipal	<input type="checkbox"/>	District
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What is your current position in your organisation? Please tick (✓) only one.

<input type="checkbox"/>	Head of Planning Department	<input type="checkbox"/>	Head of One-stop Centre
<input type="checkbox"/>	Planning Officer	<input type="checkbox"/>	Assistant Planning Officer
<input type="checkbox"/>	Other(s) Please indicate		

Please kindly tick (✓) one box that represents the total numbers of employees in your department (Planning Department)

<input type="checkbox"/>	1-10
<input type="checkbox"/>	11-20
<input type="checkbox"/>	21-50
<input type="checkbox"/>	51-100
<input type="checkbox"/>	101-150
<input type="checkbox"/>	More than 150

Section B:

Question 4: Indicate the extent to which your organisation freely exploits, to gain benefit from knowledge sharing technologies (tools) and techniques in the following stages of the planning permission process: (Please tick X one box only)

'Refer to planning authority and guidelines of planning requirements' and

'Planning officer will refer to State planning department, National Physical Planning Council (NPPC)'

Meaning of scale: 1 (A Very High Level of Exploitation), 2 (High Level of Exploitation), 3 (Low Level of Exploitation), 4 (No Exploitation At All)

Knowledge Sharing Technologies and Techniques	Stages/Parts of Planning Permission Process							
	Refer to planning authority and guidelines of planning requirements				Planning officer will refer to State planning department and NPPC (National Physical Planning Council)			
	1	2	3	4	1	2	3	4
Telephone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knowledge based expert system (Planning approval system/ Geographical Information System)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intranet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electronic Office Databases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Groupware (programs that help people work together collectively while located remotely from each other)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training (In house training programme)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Non-electronic Work Manual Document	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communities of practice (a group of people who share an interest)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brainstorming Session	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mentoring / Coaching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Job Rotation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Project Review / lessons learned	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Question 5: Indicate the frequency of use for the following knowledge sharing technologies (tools) and techniques in the following two stages of the planning permission process: (Please tick X one box only)

'Refer to planning authority and guidelines of planning requirements' and

'Planning officer will refer to State planning department, National Physical Planning Council (NPPC)'

Meaning of scale: 1 (*Very Frequent*), 2 (*Frequent*), 3 (*Fairly Frequent*), 4 (*Not Frequent At All*).

Knowledge Sharing Technologies and Techniques	Stages/Parts of Planning Permission Process							
	Refer to planning authority and guidelines of planning requirements				Planning officer will refer to State planning department and NPPC (National Physical Planning Council)			
	1	2	3	4	1	2	3	4
Telephone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knowledge based expert system (Planning approval system/ Geographical Information System)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intranet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electronic Office Databases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Groupware (programs that help people work together collectively while located remotely from each other)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training(In house training programme)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Non-electronic Work Manual Document	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communities of practice (a group of people who share an interest)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brainstorming Session	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mentoring / Coaching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Job Rotation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Project Review / lessons learned	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Question 6: Indicate the effectiveness of the use the knowledge sharing technologies (tools) and techniques in the following two stages of the planning permission process: (Please tick X one box only)

Refer to planning authority and guidelines of planning requirements' and

'Planning officer will refer to State planning department, National Physical Planning Council (NPPC)'

Meaning of scale: 1 (Very Effective), 2 (Effective), 3 (Fairly Effective), 4 (Not Effective At All).

Knowledge Sharing Technologies and Techniques	Stages/Parts of Planning Permission Process							
	Refer to planning authority and guidelines of planning requirements				Planning officer will refer to State planning department and NPPC (National Physical Planning Council)			
	1	2	3	4	1	2	3	4
Telephone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knowledge based expert system (Planning approval system/ Geographical Information System)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intranet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electronic Office Databases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Groupware (programs that help people work together collectively while located remotely from each other)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training(In house training programme)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Non-electronic Work Manual Document	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communities of practice (a group of people who share an interest)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brainstorming Session	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mentoring / Coaching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Job Rotation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Project Review / lessons learned	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Question 7: Please indicate the main challenges associated with knowledge sharing in the following two stages of the planning permission process: (Please tick X one box only)

Refer to planning authority and guidelines of planning requirements' and

'Planning officer will refer to State planning department, National Physical Planning Council (NPPC)'

Meaning of scale: 1 (Very Challenging), 2(Challenging), 3 (Fairly Challenging), 4 (Not Challenging At All).

The Main Challenges	Stages/Parts of Planning Permission Process	
	Refer to planning authority and guidelines of planning requirements	Planning officer will refer to State planning department and NPPC (National Physical Planning Council)
	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
Challenges involved in dealing with, procedures, confidential status of documents and policies regarding planning approval leading to effective knowledge sharing	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
Challenges involved in exploiting employees' skills and competencies where they are willing and ready to share knowledge with others	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
Challenges involved in gaining leaders' commitment in promoting knowledge sharing in the organisation	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
Challenges involved in making decisions by top management that negatively affect promoting knowledge sharing within organisation	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
Challenges involved in using education and training for the creation of new knowledge in organisation	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
Challenges involved in promoting relationships between co-workers and leaders in the office environment in order to promote knowledge sharing	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
Challenges involved in motivating teamwork participation in the sharing of knowledge of important issues to others within organisation	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
Challenges involved in giving special recognition and enhancing the expertise of those who share their knowledge with others	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
Challenges involved in putting in place a conducive environment (where employees are valued and able to share knowledge freely)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
Challenges involved in information and authority flow based on power distance (dependence of subordinates on boss), which affects sharing of knowledge within organisation	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
Challenges involved in reducing confrontational practices in order to build trust so that knowledge can be shared freely amongst colleagues	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
Challenges involved in using IT applications (Planning approval system/ Geographical Information System) in enhancing sharing of knowledge within organisation	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
Challenges involved in providing the necessary training on how to direct succession planning towards improving the transfer of lessons learned from previous project	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4

Question 8: Please indicate the extent to which the following are considered as critical success factors in effectiveness knowledge sharing in the two stages of the planning permission process: (Please tick X one box only)

Refer to planning authority and guidelines of planning requirements' and

'Planning officer will refer to State planning department, National Physical Planning Council (NPPC)'

Meaning of scale: 1 (A Very Critical Factor), 2 (Critical Factor), 3 (Fairly Critical Factor), 4 (Not A Critical Factor)

Critical Success Factor	Stages/Parts of Planning Permission Process							
	Refer to planning authority and guidelines of planning requirements				Planning officer will refer to State planning department and NPPC (National Physical Planning Council)			
	1	2	3	4	1	2	3	4
Support from leaders in promoting the sharing of knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clear Policy/ strategies regarding the sharing of knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Using IT to facilitate sharing of knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate organisational infrastructure (team, relationship, face-to-face meeting, etc.) act as a promoting factor for knowledge sharing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Organisation's information and authority flow based on power distance (dependence of subordinates on boss) affect sharing of knowledge within organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Motivating employees to participate in the transfer of their knowledge on important issues to others within the organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Willingness of employees to work with others and share knowledge to their mutual benefit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training and education are needed to be able to guide the training towards increasing knowledge sharing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Developing an appropriate remuneration system that rewards those who share their knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper budgeting and allocation of resources (financial, employees and time)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Question 9: Please indicate the extent to which the following resource variables have a positive impact on how *knowledge sharing contributes* to the following two stages of the planning permission process: (Please tick X one box only)

Refer to planning authority and guidelines of planning requirements' and

'Planning officer will refer to State planning department, National Physical Planning Council (NPPC)'

Meaning of scale: 1 (A Very Positive Impact), 2 (Positive Impact), 3 (A Fairly Positive Impact), 4 (No Positive Impact At All)

Organisational Resources	Part of Planning Permission Process							
	Refer to planning authority and guidelines of planning requirements				Planning officer will refer to State planning department and NPPC (National Physical Planning Council)			
	1	2	3	4	1	2	3	4
What is the impact of clear rules & procedures on the confidential status of documents and on policy, in contributing to effective knowledge-sharing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What is the impact of exploiting employees' skills and competencies (where they are willing and able to share such knowledge) in contributing to knowledge sharing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What is the impact of gaining leaders' commitment in contributing to effective knowledge sharing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What is the impact of top management decision-making in contributing to effective knowledge sharing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What is the impact of education and training in the creation of new knowledge in contributing to effective knowledge sharing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What is the impact of the relationships between office co-workers and leaders (managers) in contributing to effective knowledge sharing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What is the impact of motivating teamwork participation and sharing knowledge (on important issues to others in the organization) in contributing to effective knowledge sharing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What is the impact of giving special recognition and enhancing the expertise of those who share knowledge with others, in contributing to effective knowledge sharing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What is the impact of putting in place a conducive environment to assist in sharing knowledge, in contributing to effective knowledge sharing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What is the impact of an information and authority flow based on power distance (dependence of subordinates on the boss) in contributing to effective knowledge sharing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What is the impact of reducing confrontational practices in order to build trust so that knowledge can be shared freely amongst colleagues in contributing to effective knowledge sharing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What is the impact of using IT applications (such as planning approval systems/geographical information systems) in contributing to effective knowledge sharing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What is the impact of an allocation of an appropriate budget) in contributing to effective knowledge sharing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What is the impact of an allocation of appropriate resources (employees) in contributing to effective knowledge sharing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Question 10: By drawing on your experience and that of your organisation, please kindly indicate the level of contribution that Knowledge Sharing Initiatives have on the following two stages of the planning permission process (Please tick X one box only)

Refer to planning authority and guidelines of planning requirements' and

'Planning officer will refer to State planning department, National Physical Planning Council (NPPC)'

Meaning of scale: 1 (A Very High Level Contribution), 2 (A High Level Contribution), 3 (A Fairly Level Contribution), 4 (No Level Contribution At All).

Knowledge Sharing Initiatives	Part of Planning Permission Process							
	Refer to planning authority and guidelines of planning requirements				Planning officer will refer to State planning department and NPPC (National Physical Planning Council)			
	1	2	3	4	1	2	3	4
Capturing knowledge in repositories	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Information Technology to share and transfer knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Creating a supportive environment for knowledge sharing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Identifying internal or external best practices from which knowledge can be obtained	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Question 11: Please Rank by numbering (1 – 6) the extent to which the following knowledge sharing initiatives contribute to the listed performance measures in the planning permission process generally.

Rank 1 – 6 (with 1 being the highest level of contribution and 6 the lowest level of contribution)

Knowledge Sharing Initiatives	Improved Efficiency (ability to do something well or achieve a desired result without wasted effort or energy)	Improved Performance	Improved Knowledge of the worker	Improved Accountability (responsible to somebody or for something)	Improved Quality of work	Improved Decision Making (enhance decision making)
Capturing knowledge in repositories						
Information Technology to share and transfer knowledge						

Creating a supportive environment for knowledge sharing						
Identifying internal or external best practices from which knowledge can be obtained						

Please provide further comments relating to this questionnaire or the area of the study, if any, in the space below (or on a separate sheet if needed).

Thank you for taking the time to complete this questionnaire.

If you would like a summary of the final survey report to be sent to you, kindly tick (✓) the box and fill in your name and address below. ☐

Name:

Address:

Email:

Appendix 4: Interview Questions



The University of Salford, Salford, Gt. Manchester, M5 4WT, England, UK

Interview Questions

Research Title: Knowledge Sharing Initiatives in Malaysian Local Authorities

Aim:

The aim of the research is to establish the significance of knowledge sharing initiatives in the planning permission process and to develop guidance in this regard for local authorities in Malaysia with a view to improving the process.

Research Question;

To what extent do knowledge sharing initiatives impact on the planning permission process and how best is this impact conceptually modelled and presented?

Definition of Knowledge Sharing:

Knowledge sharing is a process where individuals, groups or departments in Malaysian Local Authorities exchange or share their knowledge (tacit or explicit knowledge), and, together, create new knowledge and share understanding of their work through the whole department

Definition of Knowledge Sharing Initiatives:-

Knowledge Sharing Initiatives are programmes that create an environment to enhance the performance of the organisation by providing support on a variety of aspects that will make it efficient and effective by enhancing knowledge creation and innovation

Knowledge sharing Technology (Tools):

This refers to information technology, e.g., telephone, the Internet, intranet, planning approval system, office database, etc.

Knowledge sharing Techniques:

This refers to non-Information Technology activities or to people orientation, such as brainstorming, training, mentoring and project review.

Questions

1. Please kindly enlighten me as to the different type of KS techniques used in the Planning Permission Process?
2. How are these KS techniques used in the Planning Permission Process?
 - How and when are they used?
 - And when were they first used?
3. Please kindly enlighten me as to the different types of KS tools used in the Planning Permission Process?
4. How are these KS tools used in the Planning Permission Process?
 - How and when are they used?
 - And when were they first used?
 -
5. In your view, to what extent would you say that the concentration of authority and decision making at the top management level impact negatively on the effective sharing of knowledge during the Planning Permission Process?
 - In your view, please give me an idea of the impact of the structure of your local authority on effective KS in the Planning permission Process?
 - In your view, please give me an idea of the impact of the culture of your local authority on effective KS in the Planning permission Process?
 - In your view, please give me an idea of the impact of the motivational approaches /initiatives/constructs of your local authority on effective KS in the Planning permission Process?
6. Given your role and experience, what is your view regarding how the following rules and procedures impact on effective KS in the Planning Permission Process?
7. In your view, to what extent does the inequity of power distance between a person at higher level and a person of lower level impact on KS in the Planning Permission Process?

8. In your view, how does the integration of groups / team working impact positively on KS in the Planning Permission Process?
9. In your view, please kindly enlighten me as to the different approaches in place in your organisation to encourage KS in the Planning Permission Process?
10. Which of these approaches are considered effective and why?
11. Please kindly inform me of the main/critical challenges that impact on effective KS in the Planning Permission Process?
12. Please kindly inform me of the critical success factors that support effective KS in the Planning Permission Process?
13. In your view, how do the activities carried out as part of the Planning Permission impact:
 - Positively on KS?
 - Negatively on KS?
14. How does the nature of the Planning Permission Process impact on the appropriate choice of:
 - Tools and
 - Techniques

used in KS in the Planning permission process?
15. What particular aspects of the Planning permission process provide the greatest:
 - Challenge
 - Opportunity for effective KS?
16. In your view, which of the
 - tools
 - techniquesof KS would you say are very effective in the Planning permission Process and why?

[illegible]

