

Knowledge Management's Influence on Government Organisations' Innovativeness

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Abstract

This study investigates whether Knowledge Management (KM) holistically influences organisational innovation in the government sector. To determine the relationships between KM and organisational innovation, identified in the literature and used in practice, a quantitative survey approach was undertaken using a series of researcher-developed scales. From the literature Organisational Innovation (OI) was identified to be important in relation to KM, and a conceptual framework was designed to test the concept of the holistic influence of KM on organisational innovation. A total of 625 valid responses were collected from top and middle management from 54 government organizations in the Kingdom of Bahrain. The model was statistically tested according to the research hypotheses by regression analysis, then Structural Equation Modelling (SEM). The results reveal strong and significant correlations amongst organisational development practices. Although the holistic influence of the model could not be confirmed, findings show a positive KM influence on organisational development practices, thus KM is an essential factor for government organisations. The model needs further investigation to explore the missing variables to make it 'fit for purpose', and the concept of a holistic model needs to be further subjected to empirical investigation to explore its viability.

Keywords: *knowledge; management; government; organisations; innovation*

1. Introduction

During the past decade research on Knowledge Management (KM) has emerged as a new direction in the management literature. At the same time many governments have started to be aware of challenges that have forced them to think about new approaches and practices that can help them to be competitive (Chua & Goh, 2008). This situation has raised the need for effective outcomes from different initiatives that involve KM in government programmes. In developing countries, the issue of using KM initiatives is new to many organizations and even more to governmental organizations (GO's) (Chawla & Joshi, 2010). The need for such research is rising with shrinking budgets available and governments' search for sustainable resources (Liao et al., 2008; Yang, 2008). Therefore, Chaston (2012) recently, for example, studied the role of KM in UK government local authorities in relation to innovation and found that both practices have a clear impact on their performance.

The importance of KM as a source of Organisational Competitiveness (OC) has influenced many government organisations to try and overcome obstacles towards full utilisation of knowledge in different ways (Bogner & Bansal, 2007; Walczak, 2005; Yahya & Goh, 2002). However, recent studies suggest that KM is still not well linked with certain practices relevant to organisational development despite the rapidly expanding knowledge economy (Lucas, 2010; Phusavat et al., 2010). Effective KM practices require an organisational climate with a reward system that values, encourages cooperation, trust, learning and innovation, which are still missing in many government organisations (Akdere, 2009; Zack, 1999; OECD, 2001). KM as an organisational internal resource can support the development of a comprehensive system, allowing the generation of new knowledge according to organisation needs;

taking into consideration availability of proper environment and organisational status (Salisbury, 2003). In different industries, increases in knowledge management are associated with organizational changes towards better productivity that enables service or product differentiation, better organisational competitiveness through effective results and integrated understanding of both organisational developments with knowledge capabilities in a particular environment (Thornhill, 2006).

The research reported in this paper is based on the rationale that current frameworks do not provide clear, holistic, integrated guidance between KM and the prevalent organisational development practices such as organisational excellence, learning, innovation, and competitiveness (Liao & Wu, 2009). Current research of KM influence and its relations does not utilise the benefits of integrating organisational development initiatives towards better organisational competitiveness (Morales et al., 2007). It is not clear which business parameters, in relevance to practices, are affected by KM's presence and to what extent such practice influences the other development practices that government organizations need more and more today.

The aim of this study is to investigate understanding towards the utilization of governments' initiatives and specifically KM programmes. This is achieved through studying the perceived links between the main enablers of KM practices and the prevalent organisational development practice of innovation. There is a need to study the effect of KM as an independent variable in GOs on the specific dependent variables. To achieve this aim, the following constitutes the key objectives of the research:

Objective 1 - To develop an initial conceptual model for examining the holistic influence between knowledge management practices and organisational innovation based on the examination of the literature gaps in the body of knowledge.

Objective 2 - To empirically test the relationship between KM and OI in the government organisation context.

Objective 3 - To investigate and provide an understanding of how KM practices may contribute holistically to the organisation development practices that comprise the dimensions of organisational innovation in the context of governmental organisations.

2. Literature Review

2.1 The Concept of Knowledge Management

The concept of KM has matured over many years from the time of Aristotle as a quest, where knowing and reasons for knowing were the goal of the élite, but the more contemporary work can go back to Michael Polanyi who stated "we know more than we can express" and have seen knowledge as "justified true belief" (Polanyi, 1970: 1). It is important to review what knowledge is, before examining knowledge management (KM). Alavi & Leidner (2001) described knowledge as a state of mind where knowing and understanding is gained through experience or learning. Knowledge is information that is effective in action, and focused on results (Drucker, 1993). Knowledge is one of an organisation's key resources influencing its intelligence, decision-making, forecasting, designing, planning, diagnosing, analysing, evaluating and having an effective intuitive judgement (Tiwana, 2000). The significance of knowledge as a resource arises due to the ability to create protection to the organisation from being imitated or copied easily, and its ability to create strategic equivalents (Barney, 1991) or limitation of replication (Grant, 1996). Knowledge is one of the main resources that creates what is called resource-based organizations where their possessed resources and capabilities differ from competing firms in a long lasting way (Barney, 1991). This complements Teece's (2001) argument; only when the organisation has the ability to build, utilise and protect knowledge which is difficult to imitate, can it attain competitiveness. Knowledge is proposed as a production mechanism introducing innovation as one kind of output and learning and skill enhancement as another. Knowledge is framed experiences and values that are produced when shared, used and reused (Davenport & Prusak, 2000; Nonaka & Takeuchi, 1995), and knowledge value increases, when it is managed to influence the core values and strategic priorities of the organisation.

The management of knowledge is meant to make it the main source for enhancing an organisation's ability to be more competitive in the modern economy (Dimitriades, 2005). In general, the processes of generation, codification and transfer of knowledge in organizations are usually referred to as Knowledge Management (KM) which is also found to improve business performance and decision making (Hlupic et al., 2002). This means that KM should help to create, expand and exploit knowledge towards realising organisational goals (Riege & Lindsay, 2006). Among the many definitions of KM, Hibbard (1997: 46) was found to be the most comprehensive and hence suite the scope of this research:

“Knowledge management is the process of capturing a company’s collective expertise wherever it resides – in databases, on paper, or in people’s heads - and distributing it to wherever it can help produce the biggest payoff”.

KM may constitute processes or practices that help create, acquire, capture, share and use knowledge wherever it resides to enhance organisational development (Loermans, 2002). The American Productivity and Quality Centre (APQC) has defined KM as the ability to get the right knowledge to the right people at the right time to help people share and put information into action in ways that strive to improve organizational performance (APQC, 2000). These arguments point to the role of KM in the development of innovation, through continued organisational learning practices, or as a comprehensive management framework of organisational expertise leading to organisational innovation (Grimaldi & Rippa, 2011). For practitioners, KM practices enhance the quality of decision-making and problem solving which can help to sustain the competitiveness of organisations in the new economy (Salleh & Ahmad, 2008; Birkinshaw & Sheehan, 2002). This view is similarly supported by Ribière & Khorramshahgol (2004) who believe that organizations cannot achieve worldwide performance excellence without focusing on KM alongside other quality disciplines, in order to meet customer expectations. In summary, there are three main approaches of KM research over the last twenty years: measuring knowledge, managing knowledge (either with emphasis on human capital or on information technologies) and creating knowledge (Lloria, 2008). This research focuses on the management of knowledge on organisational innovation and measurement of the influence of this knowledge once it is managed.

2.2 KM influence on Organisational Innovation

Organisational Innovation (OI) can be described as the practices in the organisation leading to an environment of management and climate for the removal of barriers against idea generation and its implementation (Lee et al., 2011, Hung et al., 2010). Researchers believe that through organisational innovation redundant learning is decreased and organisational efficiency and responsiveness is increased (Basadur & Gelade, 2006). OI is found to depend on the working environment that varies in the extent of the knowledge and experience that can be shared (Tiwana, 2000). Jensen et al. (2007) argue that the informal processes of learning and experience-based know-how establish different forms of knowledge that lead to different modes of innovation, since this style of unstructured learning attracts communities of practice in mobilizing tacit knowledge and innovation in problem-solving and learning.

With KM influence, addressing business problems can help create innovative products or services that can enhance customer relationships, ensuring organisational growth (Vaccaro et al., 2010; Thornhill, 2006; Jiang & Li, 2009). KM practices are believed to play an intermediary role towards OI (Grimaldi & Rippa, 2011; Jiang & Li, 2009). To enhance the relationships between ability to retrieve and use knowledge, called knowledge inertia, OI plays a role in enhancing the organisational problem-solving practices, depending on the type of organization (Pun & Balkisson, 2011; Liao et al., 2008). Hung et al. (2010) report that the humanist approach to KM influence significantly and positively affects innovation performance when compared to the IT-focused KM approach.

Chaston (2012) believes that KM influences open innovation practices in GOs through enhancing the way the organisation works with its partners starting with changing the way of administering and improving work practices and processes. The consistent influence of KM is found to enhance the organisation’s ability to produce products or services that are competitive, efficient, and effective while being able to continuously improve (Goh, 2002; Yahya & Goh, 2001). KM practices are found to enhance the ongoing interaction of individuals and groups in creating, capturing and sharing knowledge while turning it into new services and profitable products (Boumarafi & Jabnoun, 2008). This was followed by a proposition by Hua et al (2009), who confirmed the relationships between and among knowledge sharing, team culture and service innovation performance are significant and strong. Kumar & Rose (2012) also confirm from a study on Malaysian government culture that knowledge sharing capability and employees’ innovation capability are highly linked to their ethics and beliefs.

Nowadays, innovation management emerges as a viable concept that leads to OC through better performance and competitive edge that would happen through improvement in cultural creativity (Chaston 2012; Rhodes et al., 2008). With more cultural communication, knowledge transfer can be facilitated to broaden organisational learning leading to OI (Lin, 2007; Adams & Lamont, 2003). KM raises the capacity of the organisation making sense of the past compilation of experiences connecting patterns from the past to the present and future, this enhances the ability of the organisation to speed up creative processes to generate OI (Rivera-Vazquez et al., 2009; Carneiro, 2000). Certain cultural practices such as interpersonal trust, communication between staff, information systems availability, coordination, adaptability, responsiveness, organisation structure and rewards have influenced KM and OI (Al-Alawi et al., 2007). The influence of KM has a number of positive results that trigger OI, starting from maximising the utilisation of resources, to creating better government capacity to delivering value added services which finally

encourages more open culture creating good governance (Chuang et al., 2010). Improving the image of the GOs can be an achievable task and this would raise the standing of civil servants, possibly leading to a culture of continuous improvement (Lee et al., 2011).

Studies demonstrate that knowledge sharing is a KM enabler that enhances innovation performance and reduces redundant learning efforts (Calantone et al., 2002; Syed-Ikhsan & Rowland, 2004). Lin (2007) argues that employee willingness to both donate and collect knowledge enable the firm to improve innovation capability. Knowledge has the possibility to influence innovation when the organisation has to share and make interactions in the way they both influence organisation performance towards competitiveness (Thornhill, 2006). Vaccaro et al. (2010) show KM to have an influence on the performance of business units involved in inter-organisation innovation initiatives. However, there is scarce research where the KM-OI relation is also applicable to government organizations.

3. Research Methodology

The research objectives were studied with reference to existing related frameworks and the development of a conceptual framework that defines and justifies the expected links between the prevalent organisational development concepts, in the context of governmental organizations using Dooley's (2000) methods as a guide.

To undertake research systematically, a research methodology has to be planned with reference to both the research objectives and questions. The hypothesis in this study was examined through both the screening and main survey following a data collection plan. The scale developed for the main survey followed the previous work to measure the influence of KM on other specified organisational development variables (Rhodes et al., 2008; Yang, 2008; Boumarafi & Jabnoun, 2008; Al-Alawai et al., 2007; Migdadi, 2005; Al-Busaidi & Olfman, 2005; Syed-Ikhsan & Rowland, 2004). The research design highlighted that a clear measurement scale of organisational development practice concepts (i.e. KM and OI) needs to be used in relevance to the context of governmental organisations.

Al-Alawi et al. (2007) believe that cultural influence on KM is quite significant; however it is fairly common across all GOs, and the researchers consider a uniformity of culture acceptance. The target sample was drawn from among upper middle and top management in all 54 government and semi-government organisations in the Kingdom of Bahrain (Creswell, 2003). The main instrument aims to measure decision makers' perception of KM influences in the context of government organizations. For the second objective a regression model was developed, followed by Confirmatory Factor Analysis (CFA) with in-depth rigorous hypotheses testing and model fit testing to see how all relations together lead KM towards influencing the organization to be more competitive.

Having discussed potential relations between KM and previous prevalent organisational development practices, one cannot ignore the developments in the literature over the past few years about the relation of knowledge economy and Organisational Innovation (OI). Sung (2006) was one of the earliest to believe that such a relation created pressure on many organizations to acquire KM capability for proper innovation management. Many authors have acknowledged that successful innovations need knowledge-intensive organisations (Hung et al., 2010; Chen & Haung, 2009). The availability of an organisation's K-Assets requires continuous innovation to survive. Given the wide range of KM tools available, organizations are endeavouring to revolutionise their approaches to utilise knowledge for innovation (Liao & Wu, 2009; Jensen et al., 2007). Effective KM has been presented in the literature as one method for improving innovation and performance (Hua et al., 2009; Swan et al., 1999). KM practices therefore keep innovation from being stagnant and influence it to respond to changing environments and market conditions (Storey & Kahn, 2010; Jiang & Li, 2009; Liao et al., 2008; Lin, 2007). The literature is still under addressed when it comes to such a relation in the context of GOs (Chua & Goh, 2008). In reference to this the study proposes a hypothesis to address the gap of such a relation in GOs:

Ho: Knowledge management is positively associated with Organisational Innovation (OI).

This hypothesis addresses both framework testing and development besides the first objective. In order to bring the necessary research components into a generalised model, careful consideration of knowledge outcomes from the literature projections and impact of relationships was established. The conceptual framework (Figure 1) moves the research towards connecting the relationships between different concepts to establish evidence to support the need for the research question 'What is the holistic relationship between KM and OI', which needs to be addressed through a model to be tested (Figure 2). The conceptual framework was evaluated for completeness and unity and for being comprehensive in reflecting the dependent and independent variables. Therefore, the proposed framework shows the linkages and influence of KM over the identified organisation developments reflecting the established relations in a comprehensive process. The next step is to operationalise the conceptual framework.

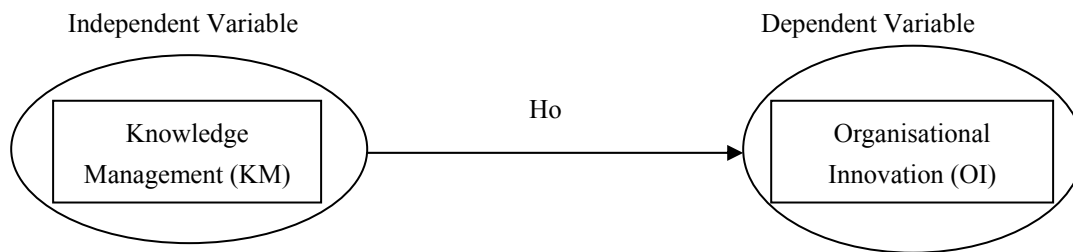


Figure 1. Proposed Path Relations between KM and OI for the Conceptual Framework

In order to gain an understanding of the recursive ability of KM influence on development practice (OI); the hypothesis is set to derive the main components of the framework addressing the possibility of the positive relation with KM. Since the primary research focus is on the holistic relation between KM practices and organisational innovation development practices, the significance of this relation needs to be studied in detail. The framework considered in Figure (1) is established to enable the KM influence on different parameters in the constructs for OI. The links in the framework are projected and predictions are made on the relationships' influence on expected outcomes. Based on the conceptual framework in Figure (1), the study was set to understand the different constructs that need to be investigated. Therefore, the proposed framework and synthesised data outcomes are reviewed to further develop a test to confirm the relationships between the constructs set in the proposed framework. These constructs propose possible practical initiatives that GOs might launch separately or in integration with each other.

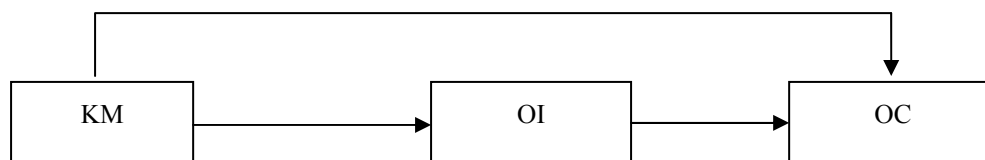


Figure 2. Relation between KM and OC Reflecting the Influence that is Made from OI towards OC to Present a Holistic Model

The scale was developed to measure the Organisational Innovation (OI) variable through rating GOs with clear social networks supporting innovative capabilities, with a reward scheme based on the value of innovation, with business results focusing on customers, changing demands and established mechanisms that harness the innovativeness of key individuals and teams to create value. OI was measured through indicators that measure the ability to combine knowledge with results to build new products and/or services, practices that bring about new products and/or services on a yearly basis, and the ability to transfer best practices leading to new developments. The measure for organisation facilities that enhance team-work, speed up creative ideas and develop new ideas from capturing achievements and failures was used to see how GOs perform in relevance to organisational innovation.

4. Analysis

4.1 Introduction

In order to analyse, review and discuss the analysis of quantitative data, these need to be taken in stages (Dooley, 2000). The stages in this study were synchronised with the two defined objectives and cross checked for the ability to answer the research question. The following analysis stages were conducted to cover each of the research objectives:

- 1) Preparatory statistics were established through Missing Values Analysis (MVA), and various psychometric approaches and procedures were applied in the study.
- 2) Descriptive statistics were used to describe the main features of the collected data quantitatively and to investigate the specific role of KM in creating OI.
- 3) Inferential statistics using T-test and One Way ANOVA were used to examine and infer statistical significance for independent samples and the difference between three or more groups, respectively. The inferential test was used to help understand the interactional effects between OI and KM.
- 4) Pearson's r statistical index was used to describe the degree of strength and the direction of relationship to understand or confirm which aspects of KM are most influential.

5) Multiple Regression Analysis, Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) were used to test and estimate causal relations using a combination of statistical data. This was supported with qualitative causal assumptions to help understand how KM contributes to a holistic approach of organisational development practices that comprises OI.

4.2 Preparatory stage - Cleaning and Organizing the Data

The data collected was checked before, during and after logging for study integrity and reliability of results, hence data accuracy was double checked for proper data entry. It is noted as per Table 1 that missing data on organisational innovation (OI), may be due to using new terms for government services. Some 3%, and above, had missed filling their answer relevant to whether their organisations have all the facilities that enhance team work, this can be referred due to the challenges in addressing the type of facilities, especially with the expected low experience in the principle of team work in government culture, which may have made the question difficult to answer.

Table 1. Category of Missing Values per Measured Variable, N=625

Category	Missing	
	Count	Percent
KM	2	0.3
OI	10	1.6

The 1.6% missing data on OI is justified by the need for government organizations to make more improvements in the area of organisational innovation (Lee et al., 2011).

4.3 Descriptive Statistics

Descriptive statistics were used to describe the basic features of the data in the study, to provide simple summaries about the sample and the instrument measures. The researchers distinguished the descriptive statistics from the inferential statistics since the latter is used to reach conclusions that extend beyond the immediate data alone based on the inference about what the population might be thinking; while the use of descriptive statistics is simply to describe what is happening in the research data in terms of percentages, frequencies and distribution. Univariate analysis techniques were used across the cases of one variable at a time, where there are three major characteristics for each single variable intended to be looked at: the distribution, the central tendency, and the dispersion characteristics.

The researchers combined several variables to define the study demographic profile and to generate information about typical organizations, participants' age, position and how they perceive organisational innovation development practices in their GO (Table 2). The analysis and tables reflect how each particular group of participants perceive the influence of KM on the specific organisational innovation development practices.

Table 2. Demographic Table for Participants

Category	Sub-Category	Frequency (N)	Percent (%)
Sex	Male	350	56
	Female	266	43
Age	Less than 25	3	.5
	Between 25-34	177	28.3
	35-45	163	26.1
	46-50	139	22.2
	50+	134	21.4
Position	US	17	2.7
	Manager/Director	140	22.4
	Department Head	203	32.5
	Specialist	121	19.4
	Others	117	18.7

4.4 Central Tendency Statistics

An important part of the descriptive analysis is the central tendency analysis; the analysis was undertaken to estimate the centre of values distribution. This study uses the mean, as compared to the median and the mode; since the mean is found to be the most commonly used method of describing the estimates of central tendency in the region. The study identifies the dispersion that represents the spread of the values around the central tendency through both the range and the standard deviation of the former shows the result of the highest value minus the lowest value and the

set of scores in relation to the mean; respectively.

Most results in Table 3 show the central tendency for the mean and standard deviation to be within 3.5 +/- 0.5; which means that most of the participants perceive their Empirical Research Analysis organisation developments and practices to be high. It is worth noting that some representatives of certain GOs choose an average range of 4 out of 5, meaning they perceive the concepts and practices to be fulfilled. The results propose that 37.4% of the participants believe that KM (as an internal resource) is not well utilised. This may be explained by the fact that such managers are not used to seeing areas of improvement. The mean and standard deviation shown in Table 3 are similar in KM and OI.

Table 3. Mean and Standard Deviation for KM and OI Organisation Development Practices

Organisational Development	Mean	Std. Error	Std. Deviation
	Statistic		Statistic
Knowledge Management	3.31	0.03	0.72
Organisational Innovation	3.32	0.03	0.71

4.5 Inferential Statistics stage

As per the data analysis plan the inferential statistics procedure was used to draw inferences about the population from the sample used to estimate a parameter and a confidence interval about the constructed estimate. Inferential statistics was used to detect changes between and within groups; in this research two inferential procedures were used which are the independent samples t-test and the one-way ANOVA.

The t-test in Table 4 reveals that an examination of organisational innovation development practices according to gender was not statistically significant at 0.05. Interestingly to report males' portions were slightly higher than females' portions with 347/349 for men and 260/265 for women.

Table 4. t-test by Gender

	Sex	N	Mean	Std. Deviation	Std. Error	Sig.
					Mean	
Knowledge Management	Male	349	3.2906	.72135	.03861	0.875
	Female	265	3.3203	.71513	.04393	
Organisational Innovation	Male	347	3.3128	.71605	.03844	0.704
	Female	260	3.3089	.69902	.04335	

Table 5 examines the size of differences between the age groups for organisational innovation development practices. Procedure one-way ANOVA was performed on the age data set. The results show that a statistically significant difference was obtained for organisational innovation development practices. The ANOVA test shows in conclusion that groups do not differ from each other between, and within, the test variable according to age group variances.

Table 5. ANOVA Differences between Age Groups

		Sum of Squares	df	Mean Square		
				F	Sig.	
Knowledge Management	Between Groups	10.659	4	2.665	5.262	.000
	Within Groups	308.435	609	.506		
	Total	319.094	613			
Organisational Innovation	Between Groups	15.283	4	3.821	7.908	.000
	Within Groups	291.341	603	.483		
	Total	306.624	607			

Table 6 examines the size of differences between the position groups for organisational innovation development practices. A procedure one-way ANOVA was performed on the data set. The results show that KM statistically varies according to position groups. The ANOVA test shows that OI does not statistically vary between and within groups according to position.

Table 6. ANOVA Differences (or similarities) between Position Groups

		Sum of	df	Mean	F	Sig.
		Squares		Square		
Knowledge Management	Between Groups	2.344	4	.586	1.138	.338
	Within Groups	304.296	591	.515		
	Total	306.640	595			
Organisational Innovation	Between Groups	6.858	4	1.714	3.514	.008
	Within Groups	285.446	585	.488		
	Total	292.303	589			

4.6 Correlation Analysis

The results of the correlation coefficients show that participants from top and middle management of GOs were consistent in their answers regarding the importance ranking scores of the KM relation with OI. Organisational innovation constructs have positive correlations at 0.05 level ($p < 0.05$) with highest correlation coefficients when the organisation combines knowledge with results to build new products and/or services (q55). The following sub-sections focus specifically on the correlations of the two main pillars of the study, KM and OC and examine how the defined prevalent organisational innovation development practices correlate with them.

4.7 Organisational Competitiveness Correlations

As part of the second and third objectives of the study the researchers wanted to determine whether the organisational development practice variable OI influences OC.

4.7.1 The Relation between Organisational Innovation (OI) and Organisational Competitiveness (OC)

The OI-OC relation showed an overall positive correlation at 0.00 level ($p < 0.05$), and was 0.713 where the highest correlation among the various indicators of the two dimensions was at 0.485 on adapting the practice of clear social networks in the organisation which supports innovative capabilities (q51) and having analytical capabilities that leads to learning from mistakes (q17), which seem to synergise organisation development in innovation. While the lowest correlated coefficient (0.087) related between having the practice of clear social networks supporting innovative capabilities, and creating a good profitable income for government with a return on investment (q13).

4.7.2 The Relation between KM and Organisational Innovation (OI)

The KM-OI relation showed an overall positive correlation at the 0.00 level ($p < 0.05$), and was 0.766, where the highest correlation among the various indicators of the two dimensions was 0.583, and existed between establishing mechanisms that harness the innovativeness of key individuals and teams to create value (q54), and (q201) having a clear process of capturing the collective expertise and intelligence. This tends to support previous work (Lucas, 2010; Njuguna, 2009; Rhodes et al., 2008). While the lowest correlated coefficient (0.312) in this categorical dimensional relation was found between (q58) having all the facilities that enhance team work, and (q28) having the practice of always sharing the organisational knowledge with partners. The overall finding from the correlations shows the need for subsequent structural modelling to generalise the KM influence on holistic relations.

4.8 Regression Analysis and Hypothesis Testing

Through the regression analysis the hypothesis was tested. The hypothesis went through rigorous tests to see whether the hypothesised relationships can be confirmed or not. The hypothesis proposed a positive association between KM and Organisational Innovation (OI). This hypothesis has been investigated using a linear regression model. Before finding out the positive association between KM and OI, it was decided to apply regression analysis for the indicators deciding on the Organisational Innovation. The results derived from the regression analysis concluded with significant findings and the t-value was more for combining the organisational knowledge with results to build new products and/or services (q55) than other indicators. All indicators in the multiple regression models were significant except (q53) where the organisation business results focus should be based on customers and understanding changing demands, (q58) where the organisation has all the facilities that enhance team work and (q59) where the organisation is expected to have the ability of speeding up creative ideas. A simple regression model examining the influence of KM on organisational innovation was developed. The results of this simple regression analysis confirm the hypothesised relationship between KM and OI at the 0.05 level.

5. Discussion of the Findings

The final part of the KM-OC survey focused on understanding the proposed KM contribution towards the development of organisational innovation (OI) practices in the context of GOs. The discussion of this practice helps to address part of the first research objective. The results of the survey and the outcome of the literature review support the view that GOs can have better organisational innovation development practices on the presence of a supportive culture that is willing to share information and practice team work. This happens due to allowing the transfer of best practices that lead to new developments, with gradual teamwork participation in daily work. This study reported that GOs accept creative ideas from achievements and failures; however there is still a need to develop social networks that support innovative capabilities and help establish clear innovation. This process has facilitated setting a conceptual framework that included knowledge management influence on government organisation innovation. The survey results further showed participants believe that people would be rewarded on their innovation through a mechanism that brings out their potential, based on products and services that are bought on a yearly basis.

The relationship in Figure 3 is established based on the correlation results which reflect the influence of KM practices on OI. From these relations it is now clear that GOs need to effectively manage knowledge assets to generate new ideas, as observed in Figure 3. Through effective management of knowledge assets the organisation can both ensure lean services (at best quality, best cost and best delivery) and ensure enhancement of OI practices relevant to analytical capabilities. While having knowledge capturing practices, starting from utilising expertise, would both manage to establish proper programmes that close skill gaps and establish innovative programmes that create value with relevance to OI. It is concluded in Figure 3 that practices in the management of knowledge assets and knowledge capturing need to be established in KM government initiatives.

KM influence towards OI

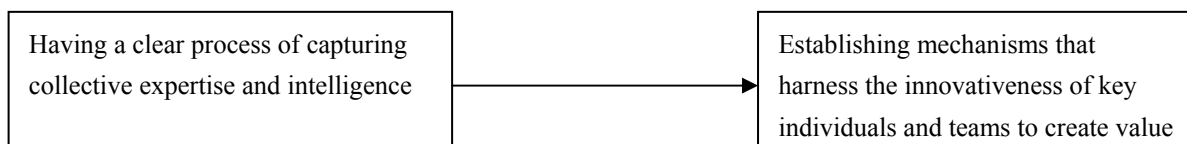


Figure 3. Specific Variable Relation that shows Knowledge Management Influence on Organisational Innovation

To meet the first objective an initial conceptual model has been developed to examine the relationships between all the organisational development practices and KM. The following model was introduced and tested:

$$OI = f(KM, OE, OC, OL), R^2 = 0.781$$

[OE - Organisational Excellence, OL – Organisational Learning]

The model captures the proposed holistic framework depicting progression from KM to OI, and expresses $OI = f(KM, OE, OC, OL)$ with $R^2 = 0.781$. R^2 represents the amount of variation in the dependent variable which is explained by the model. Thus the holistic model explains 78.1% of the variation in the dependent suggesting that there might be an area of improvement worth investigating to account for the 21.9% unexplained variation which could be due to missing variables or interaction among the variables which was not explored.

6. Conclusions and Future Research

6.1 General Conclusions

The findings of this study contribute to a better understanding of KM's influence towards GOs' competitiveness through Organisational Innovation (OI). Since knowledge assets can be easily duplicated, unless external knowledge is integrated with internal knowledge, this leads to the delivery of organizational development practices leading to a better probability of innovation performance and organisational values (Phusavat et al., 2010). This is illustrated partly in the framework by the values of organisational excellence, learning, innovation and competitiveness. The framework proposed for this study closes the gap in the literature about determining whether KM adoption can glue and influence organisational innovation and even move organizations towards greater competitiveness.

The research results urge government organisations to recognise KM holistic initiatives as a vehicle for success in creating better organisational development practices, i.e. better value. The proposed KM holistic model generates quantitatively better results and exhibits significant relations between KM and organisational internal resources with

Organisational Innovation. This research gives the academic community a new study in KM's holistic influence in creating competitive government organisations in the knowledge economy.

Continuation in this field of study would help address GOs' development and success factors such as capacity for innovation, which differentiates such an industry from other sectors (Weerawardena et al., 2006). This work supports previous recommendations on the influence of knowledge transfer or KM practices that need to be quantified in order to measure the impact on creating greater citizen satisfaction among GOs (Goh, 2002). This can support other research since it shows knowledge sharing in GOs enhancing innovation capability and can make the GOs' initiatives more customised to specific development practice outcomes (Lundvall & Nielsen, 2007; Lin, 2007).

6.2 Research Limitations

The most important methodological limitation is the decision to use a quantitative method through a designed questionnaire. Even though this method brought advantages, it also had drawbacks through having no normative data available for comparison due to the lack of an empirically validated questionnaire with similar questions. The other methodological limitation arose since this research could have produced a more enlightened result by observing the effects of KM implementation on GOs over a period of time using longitudinal research; which can be an area for future research (De Vaus, 2002). This research carries general limitations similar to most research of this nature and size with limited scope. The different sizes and variety of the 54 speciality government organisations in one country limited the possibility of generalisation, unless it is empirically tested in other countries and regions (Neuman, 2003). This study has opened different possibilities for future research and indicates a number of useful research directions not only for academic researchers, but similarly to the government practitioner. Taking Nonaka's (1998) call for not looking at organizations as machines, but living organisms, requires a continuation for the holistic approach towards using and managing knowledge.

6.3 Recommendations

It is recommended from this research to continue investigating other salient variables and/or relations that would complement the model proposed in this study between KM and OI, especially in a turbulent economy and where the need for a holistic approach between the practices of a knowledge economy is still rare in government organisations. An important area for researchers in the course of further study is the establishment of the path flow from KM to OC through OI or any other prevalent organisational development practice. It would be worthwhile for the concept of KM to integrate this research more clearly with newly emerging intellectual capital concepts to see how OI leads to more or less effectiveness towards organisational competitiveness (Hsu, 2008). This type of research outcome should help identify studies relevant to other organisational development as OI.

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