



**Developing and Implementing Knowledge Management in
project-based government organization: A Case study**

**تأسيس وبناء إدارة المعرفة في مؤسسة حكومية قائمة على
المشاريع العملية**

By

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ABSTRACT

The purpose of this dissertation is to examine the case study of GOV, a project based, small size, government organization and its development and implementation of Knowledge Management to gain competitive advantage and maintain its valuable explicit and tacit knowledge.

The dissertation provides a roadmap to developing and implementing Knowledge Management in any organizations using a variety of recommended tools and methodologies including a Knowledge Audit which comprises of knowledge needs analysis, knowledge inventory analysis and knowledge flow analysis. It also discusses how a codification strategy was prioritized for GOV using the results from the Knowledge Audit and a comprehensive SWOT Analysis of GOV's business internal and external factors.

The finding from this dissertation provide evidence that the specific characteristics of GOV and its clear understanding of its business needs have a great influence on how Knowledge Management should be developed and implemented. That is evident through the formulated Knowledge Management Strategy and its set of strategic initiatives and projects that would be implemented on duration of 5 years

The conclusions drawn from this study are that although Knowledge Management is a new business concept that lacks solid frameworks and implementation methodologies, organizations can begin the first steps towards its implementation through the analysis its knowledge needs and the alignment of findings to their objectives and overall strategy. Further recommendations to the dissertation include measuring the success of the Knowledge Management implementation of GOV, and revisiting the Knowledge Audit to compare the results and identify the effectiveness of the strategic initiatives and projects

Keywords: Knowledge Management, Knowledge Management Implementation, Knowledge Management Strategy, Knowledge Audit, Knowledge Flow, Strategic initiatives, operational plan

ملخص

إن الغرض من هذه الأطروحة هو إجراء بحث في دراسة حالة "GOV" وهي مؤسسة حكومية صغيرة الحجم قائمة على المشاريع العملية قامت بتأسيس وتطبيق إدارة المعرفة بغية اكتساب ميزة تنافسية والمحافظة على معارفها الصريحة والضمنية.

تقدم الأطروحة خارطة طريق لتأسيس وتطبيق إدارة المعرفة في أية مؤسسة وذلك باستخدام مجموعة من الأدوات والمنهجيات المقترحة بما في ذلك تدقيق المعرفة والذي يتكون من تقييم متطلبات المعرفة وتقدير مستودعات المعرفة وتحليل تدفق المعرفة، كما أنه يناقش كيف تم وضع استراتيجية الترميز على قمة الأولويات في GOV باستخدام النتائج المتمخضة عن تدقيق المعرفة إضافة إلى إجراء تحليل سوات SWOT شامل للعوامل الداخلية والخارجية التي تؤثر على عمل GOV.

تثبت النتائج التي خلصت إليها هذه الأطروحة أن السمات الخاصة التي تميز GOV وإدارتها الواضح لمتطلبات أعمالها أثرت بشكل كبير في الطريقة التي تم اتباعها في تأسيس وتطبيق إدارة المعرفة. يتضح ذلك أيضاً من خلال استراتيجية إدارة المعرفة التي تمت صياغتها ومجموعة المبادرات الاستراتيجية التي بنيت عليها بالإضافة إلى المشاريع المزمع تنفيذها على مدى السنوات الخمسة القادمة.

تظهر النتائج المستخلصة من هذه الدراسة أنه على الرغم من أن إدارة المعرفة تعد مفهوماً حديثاً في عالم الأعمال يفتقر إلى الأطر العامة الثابتة والمنهجيات الواضحة في التنفيذ، فإن بإمكان المؤسسات أن تخطو خطوات أولى نحو تطبيقات إدارة المعرفة من خلال تقييم احتياجاتها المعرفية ومواءمة نتائج هذا التقييم مع أهداف المؤسسة واستراتيجيتها العامة.

تتضمن الأطروحة توصيات أخرى تشمل قياس نجاح تطبيق إدارة المعرفة في مؤسسة GOV ومراجعة تدقيق المعرفة مجدداً لمقارنة النتائج وبحث مدى فعالية المبادرات والمشاريع الاستراتيجية.

مصطلحات رئيسية وردت في الأطروحة: إدارة المعرفة، تطبيق إدارة المعرفة، استراتيجية إدارة المعرفة، تدقيق المعرفة، تدفق المعرفة، المبادرات الاستراتيجية، الخطة التشغيلية.

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Chapter I: Introduction

Background Information

Knowledge is increasingly becoming an important and strategic asset for organizations' survival and competition in the business world. For organizations to be able to compete in the knowledge economy era, they should be able to identify, share and apply knowledge within the organization efficiently and effectively. However, Knowledge must be valuable, rare, imitable and non-substitutable (Cecez-Kecmanovic 2004, 1) for it to be leveraged and capitalized as a strategic and economic resource. Within an organization, knowledge exists in different entities including individuals with domain expertise, lessons learned, documents, repositories, processes, procedures, and methods (Kulkarni 2006, p. 2). The need for Knowledge Management is fuelled by the identification and classification of these various knowledge elements within an organization as well as the massive amount of information they come with.

The Knowledge Management business discipline itself covers a wide spectrum of different strategies, processes, cycles and systems to manage organizational knowledge, thus making it harder for organizations to adopt a formal solid Knowledge Management implementation method or framework. But as with other business disciplines, Knowledge Management is highly dependent on the identification of the organizations needs and what it is trying to achieve through Knowledge Management.

For organizations to fully utilize Knowledge Management, they need to understand its basic perspectives such as its components and processes as well as knowledge types. Knowledge Management typically consists of the following core components: People, processes and technology (see Figure 1). People in an organization are the main producers and consumers of organizational knowledge. The processes that create and use knowledge are found in day to day tasks as well as the implementation of huge projects. Technology encompasses people and

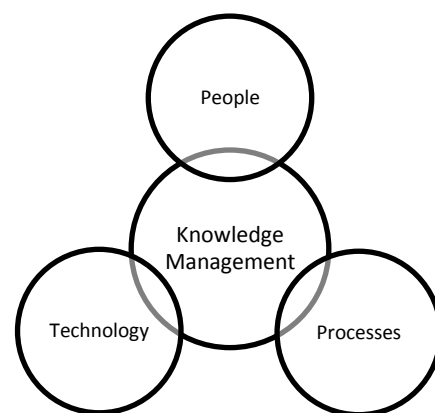


Figure 1 - Core Components of Knowledge Management

processes by supporting them and providing the tools and instruments that will ensure the right utilization of knowledge. A successful implementation of Knowledge Management depends on how these components interact with each other, as well as which component an organization would focus on. A people approach would focus on implementing communities of practice for example, while a process approach would probably focus on innovation and generation of ideas, an implementation of Enterprise Search 2.0 would typically be a technology approach to Knowledge Management.

Knowledge can be either tacit or explicit (Nonaka, 1995). Explicit knowledge is found in physical format such as documents and databases, while tacit knowledge is subjective and cannot be expressed in words or numbers, examples include skills and intuition. For knowledge to be transferred, Nonaka models knowledge on a “Spiral” in which each type of knowledge is converted to another using through the different processes: Socialization – tacit to tacit, Externalization – tacit to explicit, Combination – explicit to explicit and finally Internalization – explicit to tacit. The identification of the knowledge types within an organization will give it an idea on which tools and techniques to focus on when it is implementing Knowledge Management.

According to Supyuenyong (2006), Knowledge Management processes can be categorized into the following: Knowledge Creation and Acquisition, Knowledge Organization and Retention, Knowledge Dissemination, and Knowledge Utilization (See Figure 2). Through Knowledge Creation and Acquisition, organizations identify knowledge gaps between required and existing knowledge, and as a result set its Knowledge Management requirements accordingly. In Knowledge Organization and Retention, organizations validate, categorize, store and maintain the acquired knowledge. Through Knowledge Dissemination, organizations can foster a learning environment by effectively transferring, sharing and communicating knowledge throughout the organization. Finally, knowledge’s true value can be measured in the Knowledge Utilization process, in which organizations apply and incorporate knowledge to achieve operational excellence and competitive advantage. If organizations can exploit the importance of each sub process and fully understand it, it would certainly be on the right path of implementing Knowledge Management successfully.

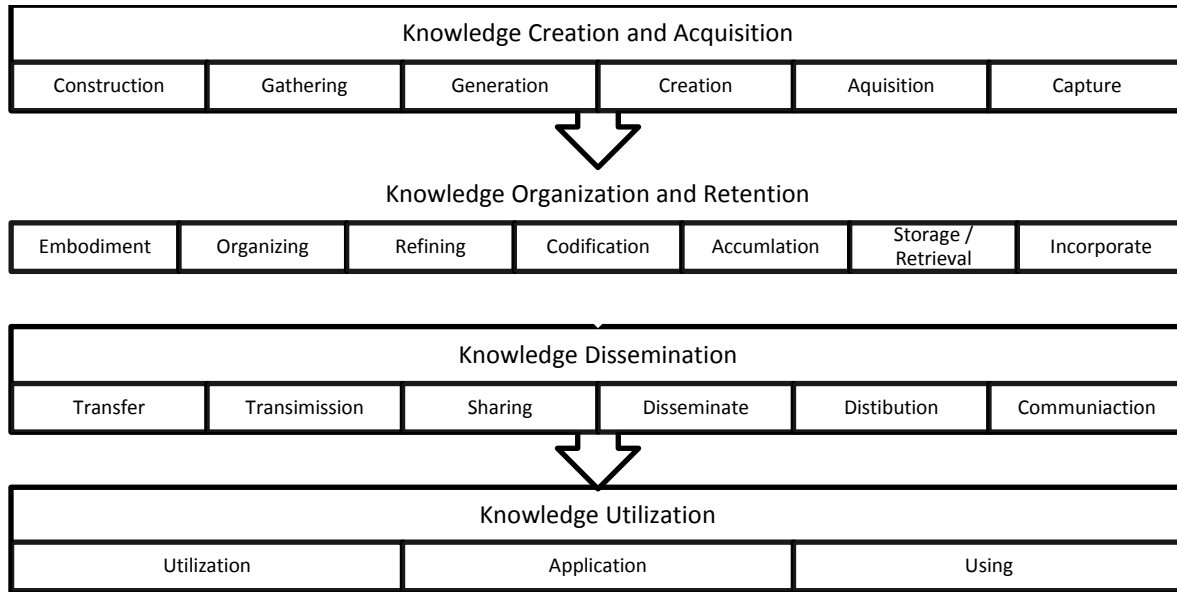


Figure 2 - Knowledge Management Processes and Sub-Processes based on Supyuenyong and Islam

This research will look at the development and implementation of Knowledge Management in an organization with specific characteristics, and explore how the different perspectives of Knowledge Management will be taken into consideration during the design

About GOV

GOV is a government organization which primarily focuses on the areas of Project Management, Consultancy and Research. GOV is also a small sized organization with around 100 employees, with mostly project managers who handle the projects and any research related to it, as well as advisors who act as consultants to the top management and the management team which consists of the CEO, department directors and section heads.

GOV has implemented different business disciplines successfully, including operational excellence, performance management, strategy and human resource planning. The implementation of Knowledge Management arose as a natural choice for GOV as it is continuously seeking to gain competitive advantage. For confidentiality reasons, the actual name of the organization was not used.

Purpose of Study

The purpose of this research is to describe and analyze the development and implementation of Knowledge Management in a small size, project-based, government organization, specifically in

GOV. The development and implementation plan will take into consideration the specific organizational characteristics of GOV and how will they determine the knowledge needs of GOV. The objectives of the study can be summarized as followed:

- Explore the characteristics of a small-size, project-based, government organization and identify where knowledge exists in it
- Describe the development and implementation of Knowledge Management in an organization
- Analyze the development and implementation of Knowledge Management in an organization
- Provide a roadmap for organizations considering developing and implementing Knowledge Management

Research Questions

How is Knowledge Management developed and implemented in an organization? Can a roadmap be followed by other organizations?

How the specific characteristics of an organization affect the development and implementation of Knowledge Management in it?

Definition of terms / Abbreviations

Data, Information and Knowledge

Data is a “set of raw, discrete facts which are not meaningful on their own. Data can be found in the form of numbers, symbols and letters”

Information is “data with relevance and meaning, and can describe a certain situation or condition”

Knowledge is a “fluid mix of framed experience, values, contextual information and expert insight, which in turn provides a framework for evaluating and incorporating new experiences and information” (Evangelou 2005, p. 1)

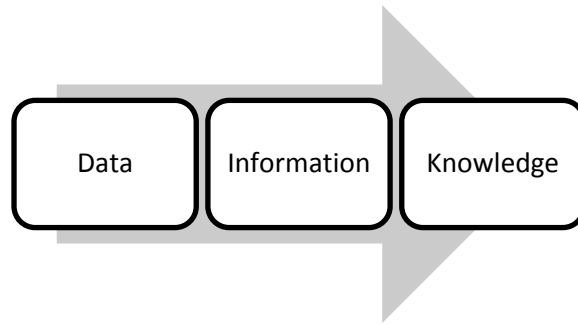


Figure 3 - Data, Information and Knowledge relationship

Knowledge Management

From a business point of view, Knowledge Management (KM) can be defined as “a process whose input is the individual knowledge of a person, which is created, transferred and integrated in work teams within the company, while its output is organizational knowledge, a source of competitive advantage” (Nevo 2007, p.584).

Types of Knowledge: Tacit and Explicit

Tacit Knowledge is highly personal and hard to formalize knowledge. Subjective insights, intuitions and hunches fall into this category of knowledge

Explicit Knowledge is knowledge that which can be expressed in words and numbers and can be easily communicated and shared in the form of hard data, scientific formulae, codified procedures or universal principles

(Nonoka 1995)

Strategy

Strategy is the pattern of decisions in a company that determines and reveals its objectives, purposes, or goals, produces the principal policies and plans for achieving those goals, and defines the range of business the company is to pursue, the kind of economic and human organization it is or intends to be, and the nature of the economic and non-economic contribution it intends to make to its shareholders, employees, customers, and communities.

(Andrews, 1980)

Delimitations and Scope

The scope of the research covers the initial stages of developing and implementing Knowledge Management in GOV, that is the setting the Knowledge Management Strategy as well as derive the specific initiatives from that strategy that will guide the whole implementation (See figure 5). The research however does not follow up on the case study, and measure the success of the implementation as this was not possible due to the fact that the case study took place during the early stages and GOV did not start the actual implementation at that time.

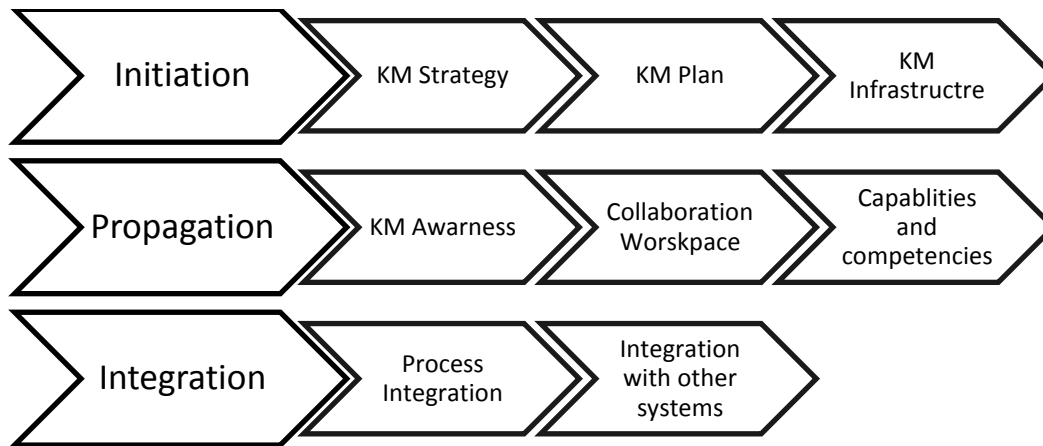


Figure 4 - Knowledge Management Implementation Framework in GOV

Dissertation Outline

In this chapter, the main topic of the research was introduced, as well as its objectives and the questions it seeks to answer. The second chapter will analyze and discuss available literature on the Knowledge Management and any relevant topics to this research. The research methodology will be explained in the third chapter, describing the research design and the tools used in the case study and why were these specific tools chosen. The research then will discuss the findings of the case study in the fourth chapter and attempt to answer the research questions. And finally, the fifth chapter will conclude the research with further recommendations and propose different approaches to answering the research questions.

Chapter II: Literature Review

Knowledge Management Strategy

Formulating a Knowledge Management strategy will help an organization understand the flow of knowledge within it, the benefits it would gain from implementing Knowledge Management, the critical success factors that will enable a successful implementation as well as what component(s) or approach(s) it should focus on. However, given the fact that the concept of Knowledge Management is new, various strategies and implementation methodologies came to exist, with each depending on different situations, factors and components.

One such methodology is a Knowledge Management Critical Processes methodology (KMCP) from the works of Barcelo-Valenzuela *et al* (2008) which relied on the core business processes within an organization and the knowledge associated with them to formulate a Knowledge Management Strategy. The amount of information coming from this method was quite large, given that all the documents, manuals and processes had to be collected, reviewed and stored in an IT system. This information, in addition to giving values and weights to processes and using complex mathematical equations may prove to be a lot of work for a Knowledge Management team, regardless of whether the method was used in a small or large organization. The method proved to be successful when compared to the results of a questionnaire, as both yielded the same results of formulating a strategy based on the same core processes that need to be focused on. However, this method was highly dependent on a capable Knowledge Management team, and a very supportive management team, thus, this methodology may not be useful to organizations that are newly implementing Knowledge Management.

Another approach by Smith *et al* (2006) formulated a Knowledge Management Strategy – or initiatives in particular – based on identifying knowledge-driven actions in an organization. The use of the concept of *Action* in this research is questioned as it was similar to the concept of core processes in Barcelo-Valenzuela *et al's* work. The method talks about turning knowledge into action, and putting knowledge to work. Thus, the process of Knowledge Utilization mentioned in the previous chapter is the main focus of the research, because it is where the organization is applying what it knows into its actions, and ultimately where the knowledge-driven actions are created. Since the creation of knowledge and action comes from the final process of Knowledge

Management, this method will also be useful to organizations that have already implemented Knowledge Management. This is backed up by the fact that the authors used a focus group research methodology on companies that have already implemented Knowledge Management, and they were sharing their success and failure stories.

For a new implementation of Knowledge Management, organizations are probably ought to focus on the other components explained in the first chapter. In their Harvard Business Review (1999) article, Hansen et al described codification (technology based) and personalization (people based) methods used to formulate Knowledge Management Strategy based on the competitive strategy of an organization. The article emphasized that organizations should focus on one type of strategy to fully utilize Knowledge Management. Despite using data and evidence from huge consulting companies, the methods explained cannot be utilized for public or government organizations because of their focus on customer, products and profits.

On a larger scale, Burstein et al (2010) research included data and evidence from public and private organizations from different industries, which provided guidance on how a Knowledge Management Strategy should be developed and implemented. Although the research focused on the people's component, this indicated that employees of an organization – management, enablers and consumers – are vital in any successful development of Knowledge Management Strategy and eventually Knowledge Management as a whole.

Knowledge Management in project-based organizations

Project-based organizations refer to organizations in which projects are “The primary business mechanism for coordinating and integrating all the main business functions of the firm” (Deguire, Thiry 2007). Knowledge, capabilities and resources within these organizations are derived and built up from the execution of projects (Deguire, Thiry 2007). However, due to the fact the projects are temporary and have different objectives, tasks and outcomes in nature, organizations find it difficult to share and locate knowledge across the projects.

The “Programme” concept could be one solution to the projects' diversity. As Kasvi et al (2003) explain, a Programme consists of projects that have similar goals and objectives that would benefit knowledge sharing among them. The authors proposed a “Learning Programme Model” based on the “Learning Project Model”, in which the same model would be applied but with

programme. Although effective research methods like questionnaires and workshop discussion were used to collect data, the problematic areas of the project model resurfaced again with the programme model. The project model required various workshops and data collection to be undertaken during the project life cycle, which resulted in project managers not being able to commit to the model because of their busy schedules. Changing the model to cover a programme would still cause the same problem, because although a programme contains many projects, this did not change the fact that each project has its own unique attributes, and data collection on a programme level would make the project managers' work even harder.

Although project managers hold massive tacit knowledge because of their work on different projects, maintaining knowledge in physical format seemed a top priority in some organizations. Various literatures proposed intelligent systems to capture tacit knowledge into physical format. Dingyong et al (2009), discussed an application which relied on project documentations such as project plans and work breakdown structures (WBS). The application was highly dependent on having specific standards and guidelines set up in order to read the different project documents. It was also specifically designed for a certain organization, and the design was dependent on its characteristics. Further testing of the system on different organizations should have been included to measure its success on a wider scale.

In contrast, a study case methodology approach by Boh (2007) emphasized that personalization could be a more effective strategy for a project based organization. Although the research discussed both codification and personalization, the author seemed convinced that socialization among project managers was more important than keeping records of project data. This was backed up by his case study, specifically for a geographically dispersed organization which preferred a codification strategy

Regardless of which strategy an organization might select, the underlying projects or initiatives will be the success indicators for the implementation of Knowledge Management. For a project-based organization, Hoegl et al (2005) describes a number of "methods" that can be used to foster knowledge management based on all knowledge transfer types. The examples and case studies used can be a good reference to researchers who would want to explore the different ways and methods Knowledge Management was implemented in different organization depending on the knowledge transfer method.

To give a general overview on how a project based organization should implement Knowledge Management, Liu et al (2009) provided a framework for implementing Knowledge Management based on the approved project management methodologies from PMBOK. The framework successfully integrated Knowledge Management with Project Management and provided a guideline for organizations on how to align both. The authors validated their research with specific factors like time that typical project managers suffer from, and how would it be tackled in the framework.

Knowledge Management in public / government organizations

Knowledge Management in the government and public organizations serves a different purpose. Service delivery and efficiency in the government are the main drivers behind the implementation of Knowledge Management.

When it came to the general implementation of Knowledge Management, it would cover the same guidelines and road map for any organization. However, there were some general differences discovered through literature. A research by Wiig (2000) discussed the implementation of Knowledge Management in the government in a similar fashion of that in any type of organization. However, it was evident from the research that the people component was of top priority in government organizations. If a government organization was seeking effective service delivery, it would come to realization that effective and knowledgeable employees were needed. Wiig emphasizes that it was not only employees who dealt with the public, internal knowledge workers in the government were focused on when implementing Knowledge Management.

Knowledge workers required technology tools to be able to share knowledge and serve the public. Gorry (2008) emphasized that if the appropriate tools were present, government employees would be more motivated to serve clients. His research covered two government organizations that probably had strong technical capabilities. This questions the importance of the technology component in the government, as it is known that in general, government organizations fall behind when it came to technology in comparison to public organizations.

Components aside, not a specific type of knowledge was given attention to in government organization according to the available literature. This could be because literature on government

is also scarce. The point is backed up by Mohammed's (2009) through a survey that covered different government organizations, in which the results indicated both tacit and explicit knowledge were managed equally. The research however brought to attention that government organizations were more concerned with performing well in Knowledge Management. Specific attention to Knowledge Management measures and success factors was evident from the survey results.

Knowledge Management in small and medium size organizations

Many believe that Knowledge Management is not needed in small or medium size organizations because of the small number of employees within these organizations. However, it is for that same reason, SMEs are considering implementing Knowledge Management to avoid loss of knowledge when employees leave the organizations.

There is scarce literature when it comes to discussing Knowledge Management in SMEs, most of the literature usually discussed and analyze implementation in large organizations. When talking about Knowledge Management in SMEs, researchers tend to emphasize although they are not complex in structure, careful implementation is needed. Wong (2005) mentioned that the low number of resources in SMEs could lead to an unsuccessful implementation and acceptance of Knowledge Management. However, this could also mean that Knowledge Management would require time and effort, which could be a preferable strategy for SMEs instead of aggressively seeking it. The critical success factors proposed by the author were appropriate for SMEs, as the specific characteristics were taken into consideration. The research could be recommended for SMEs analyzing what kind of Knowledge Management approaches should they implement.

Chan et al (2008) focused on the technology and process components of Knowledge Management in SMEs. Although the people component is not clearly indicated in the research, it is embedded with the technology and process components. The interpretation of that would be that SMEs culture tends to be more social because of the small number of employees.

Summary

This chapter looked at available literature on the implementation of Knowledge Management. The first section critiqued literature on the topic of Knowledge Management Strategy to identify the different approaches researchers have undertaken. The topics of the specific characteristics of

GOV and how they would affect the implementation of Knowledge Management were critiqued next. Literature on project based organizations, government organizations and SMEs were discussed separately to get an overview of the components and success factors that affected the implementation of GOV

The next chapter will discuss the research methodology used for the specific case of GOV and how it will attempt to describe and analyze the implementation of Knowledge Management

Chapter III: Research Methodology

This chapter will explain the research methodology used to describe and analyze Knowledge Management development and implementation in a small size, project-based, government organization and ultimately reach the objectives of the research explained in chapter one. The chapter will also discuss the descriptive research design that explains the structure and direction of the research. It is then followed by identifying the population and sample size of GOV specifically used for the research. The instruments and tools of the research and their justification will be described next. The chapter will end with explaining the data collection and analysis methods used for the research.

Research Design:

A qualitative, single case study methodology was used for this research to observe and analyze a Knowledge Management implementation within an organization. A case study is an “empirical enquiry that: investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used” (Yin, 1994). This method is used in specific circumstances: one would be when the research poses questions of “How” and “Why”; another would be when the researcher has no or limited control over the events taken place during the case study; and lastly when the case study is focused on present-day events and situations.

The case study method is used in various situations (Yin, 1994). First situation is when the researcher is attempting to explain complex casual-links in real-life interventions. The second situation would be when the researcher is trying to describe the real-life context in which the intervention occurred. Another would be when the researcher is describing the intervention itself. And finally when the researcher is exploring the situations in which the intervention has no clear outcomes. The second and third situation describe the case study of GOV as it describes, explores and analyses the development and implementation of Knowledge Management, and the outcomes derived from the implementation.

A case study research design can be descriptive, explanatory, or exploratory (Yin, 1994). Descriptive case studies are used to describe an intervention or phenomenon and the real-life context in which it occurred, and require a grounded theory to guide the data collection.

Exploratory case studies are used when the intervention being evaluated has no clear outcomes, and therefore, the research design and data collection is done before defining the research questions or hypothesis. Explanatory case studies are used for complex situations and try to explain the course of different events and how do they relate to each other.

GOV's case study was descriptive, as it described the development and implementation of Knowledge Management and the factors that affected the implementation. The research theory, design and questions were set before the data collection and analysis.

The case study was based on the following tools that will be discussed later in the chapter:

Observation during the following strategic workshops and meetings:

- Knowledge Audit Strategic Workshop
- Knowledge Management Strategy Workshop
- Knowledge Management Development and Implementation Meeting

Content Analysis of the following documents:

- Knowledge Audit Report
- Knowledge Management Strategy Document
- Knowledge Management Implementation Plan

Participants:

The participants of the research were the employees who belonged to the 5 departments of GOV. A departmental structure within GOV typically consists of a Director, heads of sections, advisors; core and support team members (See figure 6). The core team of a department consisted of the project managers who carry out the important task of managing department specific projects. The different classification of project managers does not reflect hierarchical order, but rather related to the

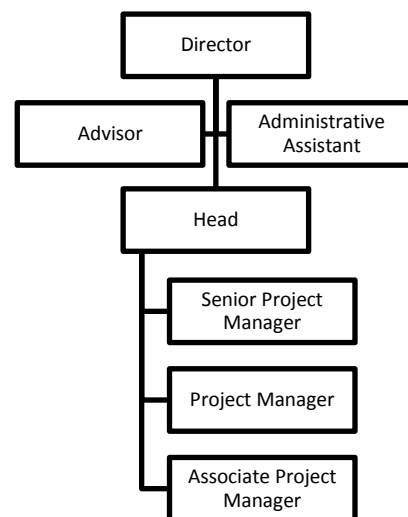


Figure 5 - Departmental Structure of GOV

individuals' proficiency and years of experience in a certain field with Senior Project Managers at the top level. The Administrative Assistants support the department daily operational tasks. Advisors are considered specialists in a certain field, and they provide guidance and advice to the department Director. Each department may consist of different sections which are led by the Section Heads.

The case study covered various workshops and meetings as explained earlier, within each of these workshops, different participants from GOV were involved. The selection of the specific participants was based on the CEO's recommendation, in which he selected participants based on their job description, seniority, availability and years of experience in GOV

Knowledge Audit Strategic Workshop Participants:

The participants of this workshop were from different departments and different levels of GOV. This workshop specifically had 22 participants in total including: The CEO, 2 Directors, 3 Advisors, 4 Section Heads, 10 core team members (project managers) and 2 administrative assistants. The Business Support department which consisted from IT, Administration and Finance sections was the only department that did not have any participants in this workshop due to work commitments.

Knowledge Management Strategy Workshop Participants:

The participants of this workshop were also from different departments, however, only senior and top management employees were involved, and consisted of the following: The CEO, 6 Directors, 5 Advisors and 4 Section Heads. The Director was the only person available for this workshop from the Business Support Department.

Knowledge Management Development and Implementation Meeting Participants

This meeting specifically involved only the CEO and the Knowledge Management team of GOV

Instruments and tools:

For case studies, the source of data comes from the following sources (Yin, 1994): Documents, Archival Records, Interviews, Direct Observation, Participant Observation and Physical Artifacts. Although GOV's Knowledge Management implementation itself covered various

qualitative and quantitative research tools such as questionnaires, SWOT analysis workshops and interviews, for confidentiality reasons, only the final reports and some results were shared with the researcher and allowed to be used for the research. Therefore, for the specific nature of the case study research methodology, data analysis tools such as observation during GOV's strategic workshops and content/document analysis of reports and documents were used instead.

Observation

Observation is a qualitative research tool that involves the systematic recording of observable phenomena or behavior in a natural setting (Gorman, 2005). The observation method has several categorizations (Slack, 2001); the first being divided into Participant and Non-Participant observations. Participant Observation involves the researcher in the case study as being part of the group being observed (e.g.: An employee; and the group being colleagues). Non-Participant Observation is the opposite in which the researcher observes the environment without being part of the group. The second categorization is Covert and Overt, in which Covert Observation is done without the group realizing they are being observed, while Overt Observations is the opposite. The third and final categorization is Structured and Unstructured, in which Structured Observation is done with the researcher already aware of what kind of notes and information he/she would be recording during the observation.

In GOV's case study, non-participant, covert and unstructured observation was used in the following workshops and meetings: the Knowledge Audit Strategic Workshop, the Knowledge Management Strategy Workshop and the Knowledge Management Development and Implementation Meeting. The non-participant method was used because the researcher was present at the workshop, but did not participate in any discussion. The CEO was the only person aware of the researcher's case study, but with the majority of participants unaware, the method used for the research can be considered as covert. And finally, unstructured observation was used because different workshops with different participants were observed and the researcher needed to ensure all notes and discussion were taken into consideration

Content Analysis

Content Analysis is a procedure for the categorization of verbal or behavioral data, for purposes of classification, summarization and tabulation (Fox, 1982). While most literature defines

content as being textual in nature, it can be in other forms such as: images, videos or physical artifacts; but these will have to be transformed into text for them to be analyzed. There are two types of content analysis: Conceptual Analysis, in which a concept is chosen and the analysis is driven from the occurrence and presence of that concept in the content; and Relational Analysis, which is similar to conceptual analysis, however it also relies on finding relationships between the concepts and not only presence (Palmquist 1997).

Relational Content Analysis was used to analyze the following documents: Knowledge Audit Report, the Knowledge Management Strategy Document and the Knowledge Management Implementation Plan. These documents formed the basis of Knowledge Management in GOV, and therefore used to gather and analyze data on the development and implementing of Knowledge Management. The documents were analyzed based on their published dates, since each document data fed into the next.

Data Collection and Analysis:

Knowledge Audit Strategic Workshop:

The Knowledge Audit Workshop was the first step towards implementing Knowledge Management in GOV. The purpose of the workshop was to identify knowledge gaps and understand knowledge flow within PMOGOV. Direct and structured observation was used to gather data on participants of the workshops and their attitudes towards the whole concept of Knowledge Management. During this workshop, it was taken into consideration that some of the participants were not accustomed with the Knowledge Management discipline, and therefore principles of data and information were used instead to make it easier for participants to grasp. That was also reflected in the title given to the workshop participants; as “Strategic Workshop” was used instead to give emphasis on importance and commitment expected. The seating setup of the workshop was as followed:

- Table 1: CEO / 1 Administrative Assistant / 1 Director / 1 Project Manager
- Table 2: 1 Advisor / 1 Section Head / 2 Project Managers
- Table 3: 1 Advisor / 1 Section Head / 2 Project Managers
- Table 4: 1 Advisor / 1 Section Head / 1 Administrative Assistant / 3 Project Managers

- Table 5: 1 Director / 1 Section Head / 2 Project Managers

It is important to note that there was no formal department handling the Knowledge Management development and implementation at the time of this workshop, instead, a team of four members was taking the lead of the initiative, and they were facilitating this workshop and future ones. The name given to the team was temporarily “KM Team” by the CEO.

The Knowledge Audit was designed by an external consulting company – whose members were also present in all workshops, bearing in mind the characteristics of GOV as well as its business strategy and goals. Although the specific details of the audit tools cannot be shared in this research, the researcher was allowed to share the general outline of the audit and some of the questions that were asked.

Knowledge Audit Workshop Outline:

Introduction: An overview of the main objectives of the workshop was explained first to the participants; mainly highlighting the importance of the information produced and gathered in GOV and how it is important in fulfilling GOV’s strategy and objectives. This was followed by explaining the concept of Knowledge and Knowledge Management, and how it can benefit GOV. The introduction part took 45 minutes in total

Knowledge Needs Analysis: This analysis determined what kind of knowledge exists within GOV as well as the knowledge gaps. The facilitators had questions about acquiring and sharing knowledge within PMO, employees work experience and skills, as well as other project specific knowledge questions. Each table had to answer and discuss the questions individually and then share it with the entire group in an open discussion. The question part and its discussion took 30 minutes each.

Knowledge Inventory / Flow Analysis: This analysis identified the tacit and explicit knowledge within GOV. The facilitators had questions about which of the knowledge is mostly used and where it is located. Each table had to answer and discuss the questions individually and then share it with the entire group in an open discussion. The question part and its discussion took 30 minutes each.

Knowledge Audit Report:

The Knowledge Audit report was prepared by the KM team and the consulting company, depending on the data collected from the Knowledge Audit Workshop. The report had the following sections, which will be the basis of the content analysis categorization:

- GOV Knowledge Needs Analysis
- GOV Knowledge Inventory Analysis
- GOV Knowledge Flow Analysis

Knowledge Management Strategy Workshop:

The Knowledge Management Strategy Workshop was the second step in the development and implementation of Knowledge Management in GOV. The purpose of the workshop was to design and formulate a Knowledge Management Strategy for GOV using the information gained from the Knowledge Audit Report. Direct and structured observation was used again to gain insight on how the strategy was designed, and what tools were used. Only senior and top management employees were involved in this workshop, which is a standard practice within GOV specifically when a strategy is formulated on a corporate level. The seating setup of the workshop was as followed:

- Table 1: CEO / 2 Directors / 1 Advisor
- Table 2: 2 Directors / 1 Section Head / 1 Advisor
- Table 3: 1 Director / 1 Section Head / 2 Advisors
- Table 4: 1 Director / 2 Section Heads / 1 Advisors

The Knowledge Management Strategy was also designed by the same consulting company who developed the Knowledge Audit.

Knowledge Management Strategy Workshop Outline:

Introduction: The workshop started with the displaying the results of the Knowledge Audit Report. It was then explained to the participants, how the information gathered will help in formulating the strategy and ultimately implementing Knowledge Management in GOV. The

Knowledge Flow and Knowledge Map diagrams were explained in detail to give a general idea about the status of knowledge in GOV. The introduction part took around 1 hour

SWOT Analysis: SWOT Analysis is a strategy tool to identify internal factors (Strengths and Weaknesses) and external factors (Opportunities and Threats). Similar to the previous workshop, each table was to discuss individually and then share findings with the entire group in an open discussion. The analysis part and its discussion took 30 minutes each

Knowledge Management Strategy Document:

The Knowledge Management Strategy Document was prepared by the KM team and the consulting company, relying on the data analysis of SWOT and PEST during the workshop. The document had the following sections, which will also be the basis of the content analysis categorization:

- GOV SWOT Analysis
- GOV Knowledge Management Strategy Draft

Knowledge Management Development and Implementation Meeting:

The purpose of this meeting was to present the final Knowledge Management Strategy to the top management for final approval depending on the Knowledge Management Strategy document.

Knowledge Management Implementation Plan Document:

This document was amended to the Knowledge Strategy Document, and it contained information about the operational plan of the Knowledge Management Department as well as the initiatives that will drive the strategy.

Ethical Considerations:

Although critical information was excluded from the research for confidentiality reasons and to protect the anonymity of the organization, consent from the CEO of GOV was given to the researcher to observe the workshops and analyze specific parts of the documents. During the workshops, the researcher was introduced as a third-party member working with the consulting company. This later turned out to be useful, as the researcher and the consulting company

members worked as a team in later stages and shared insights and notes from the workshops and the documents prepared for the implementation.

Conclusion:

The research used a descriptive single case study to describe and analyze the development and implementation of Knowledge Management in GOV. The tools and instruments used for the case study were justified to attempt to answer the research questions. Methods of data collection and analysis in GOV's workshops and documents are explained next. And finally the research states the ethical considerations taken into account.

In the next chapter, the findings of the research will be analyzed and discussed to answer the research questions.

Chapter IV: Findings and Discussions

Knowledge Audit Analysis and Discussion:

Knowledge Needs Analysis:

Available and needed knowledge in GOV:

Available knowledge in GOV	Missing knowledge in GOV
Benchmark studies External Project Documents: Project Proposals, Project Plans, WBS, Change Requests, Manuals and User guides Analysis and Statistics documents Executive Summaries	Best Practices Internal Project Documents: Lessons learnt, After Action Reviews, Historical Information Standards, Guidelines and Methodologies Expert / Peer Knowledge Access to professional external resources

Table 1 - Summary of available and needed in Knowledge in GOV

Benchmark studies are special research documents prepared by the core team of GOV using external sources such as books and the internet (See Table 1). In contrast, GOV needed access to other external resources like business article, journals and research.

GOV has poor Project Management practices despite being a project-based organization. The organization is highly dependent on project documents provided by vendors such as proposals and project plans. The most important knowledge gained from projects which come from documents like Lessons Learnt and After Action Reviews are not available in GOV.

The lack of project documentation drew attention to the fact that there are no standards or guidelines when it comes to implementation projects in PMOGOV. Several employees reported different methodologies on how they execute projects during the workshop.

Executive summaries and analysis and statistics documents are all developed in-house by GOV employees or in joint with consultancy companies. These documents are usually presented to senior and top management for decision making purposes, and therefore contain summarized information.

GOV is also lacking in Expert and Peer knowledge transfer. According to the discussions during the workshops, core team members emphasized that advisors and senior management have better

knowledge and experience when it comes to implementing projects in GOV, and because they have busy schedules and tight deadlines it is impossible to get them to share knowledge. Advisors and senior management members in the workshop agreed to the core team's observation, and they have further emphasized that projects are getting delayed because there is no knowledge transfer culture.

Core GOV employees' skills and competencies:

Employees skills and competencies	Ranking
Project Management	5
Advisory and Consultancy	4
Leadership	3
ICT	2
Research	1

Table 2 - Skills and competencies ranking by importance

Since GOV's employees is mostly made up of project managers, Project Management ranked highest as the most skill needed for GOV to implement and execute projects (See Table 2). No formal project management training or certification was required from project managers during the implementation or execution of any projects; this was due to the fact that projects were usually carried out by external vendors and GOV's project managers were stakeholders who monitored the implementation process. But since after project knowledge was considered an important asset in the previous discussion, project management was required to produce that knowledge.

Although there is total of 6 advisors in GOV, advisory and consulting ranked second highest after project management. During the workshop, directors and advisors discussed that project managers have two career paths; one is a leadership position which leads to their promotion to heads and directors, the second is a specialist positions which leads to their promotion to advisors. In addition to that, GOV was expanding its consultancy business further, by offering advisory and consultancy services to other government entities.

Leadership ranked third highest after advisory skills. Regardless of the role of an employee within GOV, the CEO have always emphasized that everyone in GOV is a leader. All staff undertook leadership training during their second year with GOV.

While research is a main business role of GOV, it ranked last because participants discussed that apart from administrative assistants; all GOV employees are university graduates and have basic research skills. The participants discussed that technologies are evolving every day and new software and applications are being introduced to the staff, which is why ICT was ranked before research. It is also an essential skill required by all staff including the administrative assistants.

Collaboration and Knowledge sharing issues:

Collaboration and Sharing issues	Ranking
Confidentiality	4
Outdated, unsystematic files on Intranet	3
Intranet not user friendly	2
Files summarized, lacked context	1

Table 3 - Collaboration and Knowledge Sharing issues in GOV

When discussing the major collaboration issues, confidentiality ranked the highest as the biggest obstacle. There was a general agreement that due to the confidentiality nature of some departments and projects, project managers specifically found it difficult to identify which files to share with all GOV, and which to share with their departments, and which not to share at all. There were certain situations when ad hoc projects were assigned to one person by the CEO, or they were assigned to two project managers belonging to two different departments; and under no circumstance these individuals were allowed to discuss any aspects of the projects to anyone except the CEO. The issue occurred when specific data was needed from the ad hoc project for another critical project, but the project manager could not share the data.

GOV's intranet stood out as a major obstacle equivalent to confidentiality, as the three remaining issues concerned it. Most of the files on the intranet were outdated and lacked structure, making it harder for employees to find and upload files for sharing purposes. This was backed up by the discussion of the intranet design and user friendliness, in which all participants agreed that the intranet needed a complete face lift and more easy to use collaborative tools were needed so users can upload new files. The files themselves were discussed next, since most documents are prepared for senior and top management as discussed earlier; the information in the documents was summarized and did not give the full picture. The context knowledge behind the document only existed with the employee who created it.

Knowledge Inventory Analysis:

The Knowledge Inventory holds information about the explicit and tacit knowledge in PMOGOV. It was created based on the participants' discussion in the workshop, as well as additional internal discussion between the Knowledge Management team and the IT department. Only specific parts of the knowledge inventory were shared with the researcher for confidentiality reasons. The tacit inventory is meant to hold information on all employees in GOV, however, other than confidentiality, it is important to note that the Business Support Department employees were excluded from the inventory, because GOV's strategy at the time was focusing on projects, research and consultancy.

Item / Category	Location	Accessibility	Purpose and Relevance	Usage
Departmental sites	Intranet	From Intranet homepage	Customized sites for departments to store their documents Most documents are outdated since there are no guidelines or standards to upload and update files regularly	Used by the department employees Used rarely
Document Database - SharePoint	Intranet / Departmental site	From Departmental Sites	Database for all project, research and studies documents. Files and folders are structured by Project, Research or Study Name.	Used by project team of specific department Used rarely
Document Database – Personal Laptops	Employees Hard Drives and Emails	Employees' laptop	Database for all project, research and studies documents. Files and folders are stored randomly in either specific folders, desktop or in email based on employee preference	Used by specific employee Used regularly on a daily basis
Employee Directory	ERP	From Intranet homepage	Directory of all employees with information about their email, department and telephone number	Can be used by all employees Never used

			Employees are sorted by alphabetical order	
...
...

Table 4 – A sample of the Explicit Knowledge Inventory at GOV

Category	Academic and Professional experience	Skills and Competencies	Training and Learning Opportunities
Administrative Assistant	High School / Diploma	Secretary skills	ICT Skills Communication Skills Research Skills
Project Manager	Bachelor / Master holder	Research Organization Time Management	Project Management Leadership Advisory and Consulting
Advisor	Master / PhD holder	Advisory and Consulting	Leadership
Head / Director	Master / PhD holder	Communication Skills Organization Time Mgmt. Leadership	Leadership

Table 5 – A sample of the Tacit Knowledge Inventory at GOV

Although GOV's intranet is well structured to different departmental sites and projects, employees are not utilizing it to the fullest. All explicit data can be accessed and used easily given that employees update the intranet with project information. The audit report shed light on a very important issue based on the inventory, while the intranet provided each department with a site to store files to be shared, it did not provide a public site for employees to share files across GOV. Although some projects and documents were confidential, there were still common files that could be used by anyone.

Knowledge Flow Analysis:

The most important source of knowledge in GOV is its employees. Regardless of whether it was tacit or explicit knowledge anyone was seeking, employees would first ask their colleagues about documents or advice. External sources such as the internet and books are used mostly for research and studies. Intranet was ranked last confirming the reasons mentioned before.

Finding Knowledge in GOV	Ranking
Staff	4
Internet	3
Other: Books, Magazines, etc...	2
Intranet	1

Table 6 - Sources of Knowledge in GOV

The Knowledge Flow diagram was developed based on the participants' discussion of how knowledge is currently carried from one point to another (Figure 7). The Knowledge Management Department later analyzed the notes from the workshop and also did an internal exercise to finalize the current Knowledge Flow process in GOV.

The flow focuses on three vital interlinked processes: Start a research, create a project based on the research and start the project. It confirmed the sources of knowledge explained earlier, thus when employees required information or a document; they contacted other employees or looked at external sources. When a research was finalized, the line manager (Director or Head) would review the research and add his/her own input or knowledge to it. At that point, the research was either used to acquire information about a certain topic and the cycle would stop there, or the research would be presented to the management for decision making. An executive summary would be prepared if a presentation was required, that would mean taking the research and summarizing its main points. After presenting, the management would review the presentation and decide to either of the following: Request extra research to be done based on new input and ideas, or create a new project based on the research. At that point, even if a project is created and proposed, that did not necessary mean it was to be started, because a lot of projects would be dropped later either because of insufficient budget, or because a similar project would serve the same purposes. That showed a risk gap in GOV, as research was undertaken without realizing the work was already been done by another department or group.

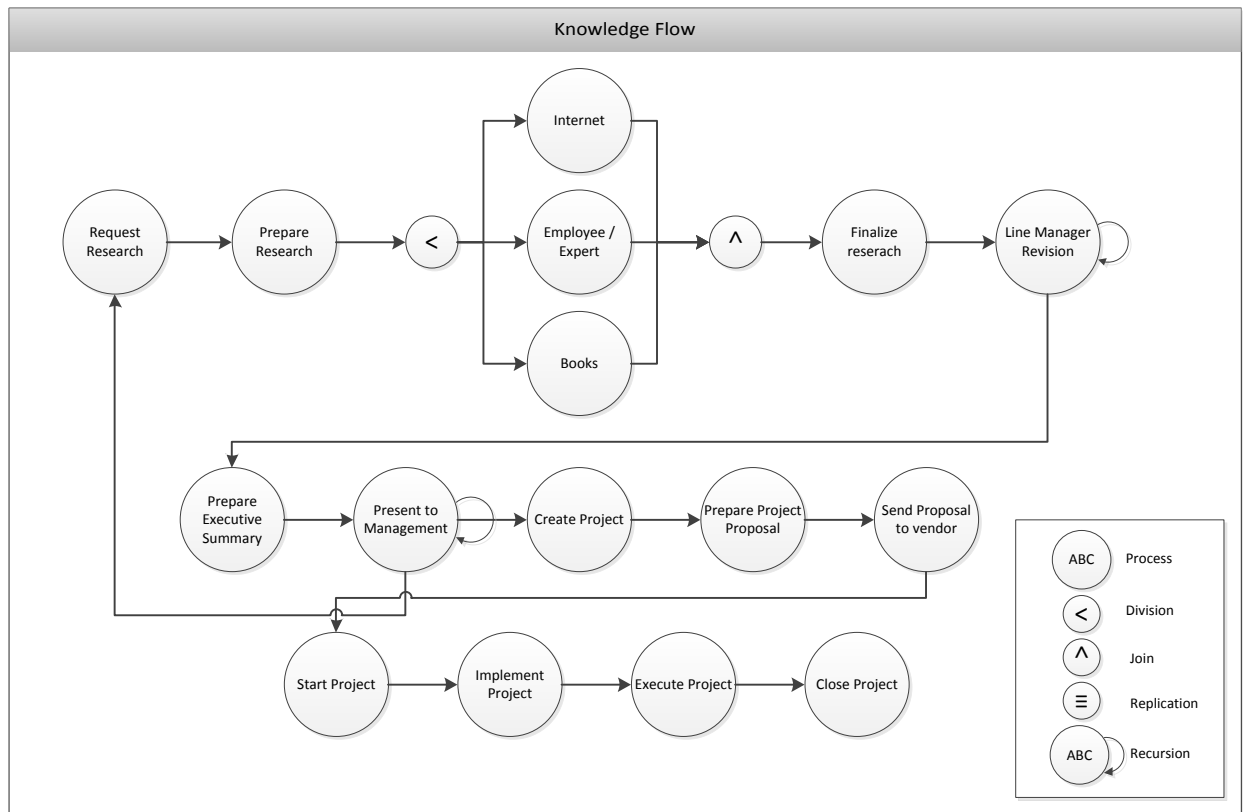


Figure 6 - GOV's current Knowledge Flow

Knowledge Management Strategy Analysis and Discussion:

The knowledge audit report provided essential information to the Knowledge Management Department, and helped shape the Knowledge Management Strategy workshop and final document.

SWOT Analysis:

Strengths	Weaknesses
Skilled, capable professional staff Good record of successful projects Latest technologies implemented Research process on track and effective Best practices implementation	Lack of Project Management Skills Loss of knowledge when a project is done No guidelines or standards Confidentiality Collaborative environment Finding and locating information on Intranet Intranet not fully utilized Repetitive tasks, processes and projects
Opportunities	Threats
Knowledge Management as a new concept Use of external resources Training staff on new focused skills Identify Knowledge Management as an important concept Consultancy as a new business venture New best practice to seek	Employees leaving GOV means Knowledge leaving GOV Knowledge Management as a new concept GOV not customer-focused

Figure 7 - GOV's Knowledge Management SWOT Analysis

SWOT Analysis Table discussion:

Human capital and technology is where GOV's strength lied. That covered two of the main Knowledge Management components (Figure 1), which reassured GOV that it was on the right track and hoped it would give it heads up when implementing Knowledge Management

Internal Factors - Strengths:

Skilled, capable professional staff:

GOV's employees are skillful and capable. They have the basic skills of research, management and communication to be able to carry out day to day tasks easily and smoothly

Research process on track and effective:

GOV's employees are capable of handling research and study on any topic. They are aware of what and whom to seek for any type of information they require

Good record of successful projects:

Because of its capable staff, GOV has an excellent record of successfully implemented and executed projects in different fields.

Latest technologies implemented:

GOV has a powerful infrastructure in place, making it easy to implement any IT systems and software. Most notable systems are the Enterprise Resource Planning (ERP) System and Microsoft's SharePoint 2010 for the Intranet.

Best practices implementation:

GOV has an excellent record of implementing best practices in other business disciplines such as Strategy and Policy, Performance Management and Operational Excellence. This made GOV confident about implementing Knowledge Management.

Internal Factors – Weaknesses:

Lack of Project Management Skills:

Although GOV's employees are capable, they would still need professional Project Management Skill if they intend to write and analyze project specific documentations.

Loss of knowledge when a project is done:

Because of the temporary nature of projects, GOV is not keeping track of what went right or wrong during the implementation and execution of projects. Post project reviews and lessons learnt hold can hold important knowledge that can be useful to future projects.

No guidelines or standards:

The lack of guidelines and standards is the main reason behind the loss of knowledge, whether it was post project reviews, exit interviews or uploading documents.

Confidentiality:

As discussed before, confidentiality was a main obstacle that hindered the sharing of knowledge within GOV, which emphasizes that guidelines are required to be put in place for ad hoc and confidential projects.

Finding and locating information:

Employees are not able to find information with GOV easily. Locating employees and documents takes most of their time, where instead they should be focusing on their tasks.

Collaborative environment:

GOV lacks an environment that fosters production and sharing of knowledge. No incentives are given to knowledge creators or sharers, nor is the intranet allowing that

Intranet not fully utilized:

From the above weaknesses, it is evident that the Intranet is not fully utilized for its capabilities. SharePoint 2010 holds many tools and instruments that could assist in the implementation of Knowledge Management in GOV

External Factors – Opportunities:

Identify Knowledge Management as an important concept:

Although not a mature concept, Knowledge Management is a competitive advantage as it is not implemented in governmental project based organizations like GOV

New best practice to seek:

In line with competitive advantage, and with its record of best practices implementations, GOV is aiming to implement the best practices in the area of collaboration and Knowledge Management in general

Knowledge Management as a new concept:

GOV has the opportunity to be one of the pioneers in successfully implementing Knowledge Management because it is a new concept

Use of external resources

Other than the internet, the Knowledge Audit Report brought attention to the use of other resources such as magazines and journals

Training staff on new focused skills

Other than project management, new skills such as advisory and consultancy in addition to risk management, resource management and ICT are new competencies GOV is seeking

Consultancy as a new business venture

With GOV expanding its business to include consultancy services, this will bring in new found knowledge

External Factors – Threats:

Employees leaving GOV means knowledge leaving GOV

With the lack of standards and guidelines, tacit knowledge is lost with any employee leaving GOV

Knowledge Management as a new concept

Although also seen as an opportunity, Knowledge Management still lacks solid frameworks and foundations, GOV need to implement it smoothly without an aggressive deadline

GOV not customer-focused

The consultancy new venture means GOV is becoming a customer oriented organization, the Knowledge Management Strategy need to be aligned with every new business venture to ensure proper expectations and implementations. With consultancy, comes new knowledge on customers, services and products that needs to be managed within GOV

Knowledge Management Strategic Plan:

Codification vs. Personalization Strategies:

When the Knowledge Audit Report components and the SWOT analysis were analyzed, both tacit and explicit knowledge were needed to be managed in GOV. However, based on the strategic plan document, the Knowledge Management team seemed to recognize that it was explicit knowledge and codification techniques that needed more focus at that moment to guide

GOV towards a successful implementation of Knowledge Management. This can be due to the following points:

- Employees sought other employees for information because project documentations and files were missing from the intranet. If they were available, the intranet would be the highest ranked in source of information
- Employees relied on external information coming from the internet and printed material, those are both considered explicit knowledge
- Executive summaries were prepared based on research and studies, if those were made available on the intranet, then employees would not need to find the employees who worked on them, and reading the research and study would be enough
- Most GOV staff had basic ICT skills and therefore would not require intensive training on new technologies and systems
- If guidelines and standards were to be set and implemented, lessons learnt and post project reviews would become a natural process within GOV and project knowledge would no longer be lost
- If a proper system was set in addition to the standards and guidelines, confidentiality would not be an issue, and employees would be able to share and set access rights to the proper documents and files
- Microsoft SharePoint 2010 needed to be fully utilized not only as an Intranet, but as a collaborative environment given that certain features were activated
- A small organization with almost 100 employees with a low turnover should share tacit knowledge easily without any geographical or structural boundaries. What was needed was an organized and structured way to capture tacit knowledge easily

The Knowledge Management department also realized that if tacit knowledge is left unmanaged; it would have its effect in the future and might lead to undesirable consequences. It was decided

that GOV would focus on a codification strategy, but would still implement personalization techniques and tools to support the overall Knowledge Management Strategy.

Knowledge Management Strategic Initiatives:

Based on the points discussed above, the Knowledge Management Department came up with a list of strategic initiatives and projects that would serve the overall Knowledge Management Strategy. If analyzed in detail, the list of initiatives and projects can be mapped to the three main components of Knowledge Management as followed:

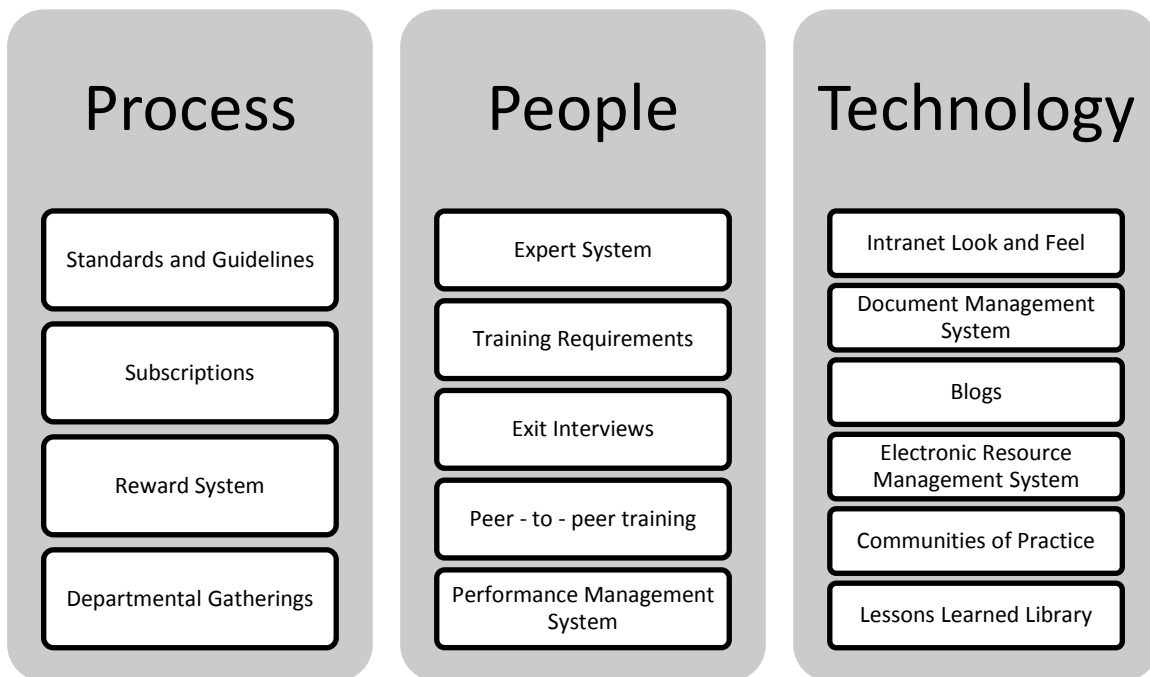


Figure 8 - Knowledge Management Strategic Initiatives in GOV mapped to KM Components

Process:

- Standards and Guidelines:

The purpose of this initiative was to set standards and guidelines for creating and sharing knowledge in GOV. The initiative would cover using the intranet for collaborative reasons, conducting peer-to-peer training and exit interviews, writing and preparing lessons learned and post project reviews. The Knowledge Management Department would work on this initiative with the HR Department.

- Subscriptions:

The purpose of this initiative was to come up with a comprehensive list of electronic and printed journals, magazines as well as websites that GOV employees could use for research and knowledge building. The Knowledge Management Department would work on this initiative with all departments to get their specific subscription needs

- Reward System:

This initiative would set up a reward system for GOV employees, in which rewards and other incentives would be given to them for sharing and creating useful knowledge. The Knowledge Management Department would work on this initiative with the HR Department

- Departmental Gatherings:

These departmental gathering would be held quarterly, during which each department would present and discuss past, current and future projects. This initiative would ensure the capture of tacit knowledge through sharing experiences about project in addition to avoiding any duplication of tasks, processes and project. The Knowledge Management Department would coordinate with all departments to schedule the gatherings

People

- Expert System:

The purpose of this system was to create a database of all GOV employees with all their information, including their education, professional skills and competencies. The database would also include information about projects they were involved in. The Knowledge Management Department would work on this initiative with the HR Department

- Training Requirements:

This initiative would address the training requirements of GOV employees, to ensure they would carry out their tasks efficiently. A training plan for each department and

employee would then be set according to their needs and requirements. The Knowledge Management Department would work on this initiative with the HR Department

- Exit Interviews:

Exit interviews would be conducted with employees leaving GOV, to ensure proper transfer of knowledge. This is another initiative that would be carried out with the HR Department.

- Peer-to-Peer training:

The purpose of this training would be to allow tacit knowledge transfer between employees. Those trainings would be conducted at specific times: when a new employee joined GOV, when an employee was to be promoted and when an employee left GOV. This is another initiative that would be carried out with the HR Department.

- Performance Management System:

Building on the reward system, this initiative would add the benefits on knowledge sharing and creating to the employees' performance reviews. The Knowledge Management Department would work on this initiative with the HR Department

Technology

- Intranet Look and Feel:

A redesign of the intranet would be carried out in this initiative. The corporate identity and colors would be taken into consideration, as well as ease of use and access to information. The Knowledge Management Department would work on this initiative with the IT Department

- Document Management System:

The intranet would be fully utilized for collaboration by using taxonomies, building SharePoint libraries and setting access rights to sites, folders and documents. The Knowledge Management Department would work on this initiative with the IT Department

- Blogs:

Blogs would be used by GOV employees to write about their thoughts, ideas and experiences during any work they have done in the organization. It would first be ensured that the writing on these blogs was to specific standards and would be included as part of the training requirements. The Knowledge Management Department would work with the IT Department to develop the blogs, and with all employees to set up their own blogs.

- Electronic Resource Management System:

Building on the subscription list, an electronic resource system would be built to manage all subscriptions electronically and allow employees to search for external sources via one interface. The Knowledge Management Department would work on this initiative with the IT Department

- Communities of Practice (CoP):

CoP is a group of people who have common roles and the motivation to share experiences, insights, best practices and solutions to problems they might face at work. CoPs work better in huge organization. The Knowledge Management Department would work on this initiative with the IT Department to develop the CoP, and other departments to build the CoP.

- Lessons Learned Library:

A list of all lessons learned from every project in GOV would be created and uploaded to a specific library on the Intranet. The Knowledge Management Department would work on this initiative with the IT Department

Most of these initiatives involve Business Support sections such as IT and HR. While the Director of the department was the only person present at the strategy workshop, the head of sections should have at least been there to fully understand what is required from them, and why it would be important to be implemented. This late involvement may prove to be a huge risk later for the Knowledge Management implementation in the future.

Knowledge Management Operational Plan:

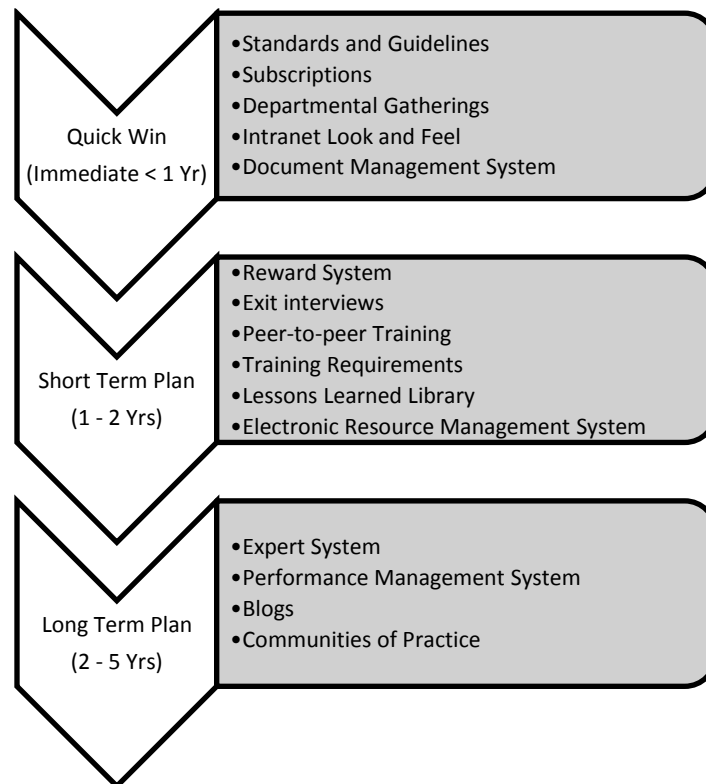


Figure 9 - Knowledge Management Operational Plan in GOV

The implementation of Knowledge Management within GOV would be carried out during a 5 years course. It is evident from the plan that the standards and guidelines had to be implemented first because they affect other initiatives, in addition to the fact that with standards and guidelines, collaboration among the employees would be easier and smoother. Most of the high demand initiatives were placed during the first 2 years; this puts a lot of pressure on the owners of the initiatives, as the remaining initiatives have dependencies on them

Although the plan divides the initiatives based on immediate, short term and long term periods, the overall plan seems to be very optimistic. While GOV has capable and skilled employees, it needed to take into consideration that the Knowledge Management Department consisted of 4 members only. Unless it had a requirement plan in place, executing the plan in 5 years might prove to be impossible, not to mention that other departments' acceptance of such systems and initiatives might cause same delays.

Summary:

In this chapter, research findings were presented and later discussed to answer the research questions. The research was based on content analysis of GOV's strategic documents as well as observation from the strategic workshops. The Knowledge Audit Report's different sections were reported, analyzed and discussed to give an overview of the steps taken before formulating a strategy and how the specific characteristics of GOV gave insight on the knowledge needs and gaps. The next section analyzed and discussed the Knowledge Management Strategy document, specifically how it was decided that a codification strategy would suit GOV because of its characteristics and based on the data gathered from the Audit Report. The document also included a set of strategic initiatives and projects that were derived based on the SWOT analysis. The last section set the Knowledge Management Strategy and its initiatives in perspective by placing them in a 5 year operational plan that GOV is seeking to implement. The overall chapter provided the steps GOV undertook to develop and implement Knowledge Management, which answers the second question of this research

Chapter V: Conclusion

This research described and analyzed the development and implementation of Knowledge Management in GOV, taking into consideration its distinct characteristics of a project based, small size, government organization. Specifically, this research analyzed the knowledge needs of GOV and formulated a complete Knowledge Management Strategy with its set of objectives and initiatives to carry forward the implementation of that strategy. The research also described and utilized Knowledge Management tools that helped in realizing the knowledge gaps in GOV. Overall, a roadmap for organizations seeking to implement Knowledge Management was proposed which would give them confidence to implement even though it is a fairly new business concept.

The next step towards the case study is to confirm the effectiveness of the Knowledge Management implementation in GOV. Setting measurements and analyzing the performance of strategic initiatives would confirm if the roadmap proposed can be implemented by all organizations and that it ensures a successful implementation of Knowledge Management. It would also be useful if the roadmap would be used on different organization types and sizes to test its effectiveness.

The Knowledge Audit Report provided GOV with valuable information on its knowledge status and what is required to overcome the knowledge gaps. While the report used knowledge analysis, inventory and flow; Knowledge Mapping would have been interesting to look at, as it gives a full fledged analysis that encompasses both the knowledge inventory and flow. However, it could be that Knowledge Mapping would make more sense when Knowledge Management is at least implemented in GOV.

As explained earlier, although GOV's core business depends on Project Management, Consultancy and Research, ignoring the Business Support Department may have its effect in the long run. The business support department also generates its own set of processes, tasks and even knowledge. If the finance, administration, IT and HR processes were taken into consideration, the overall strategy, strategic initiatives and the operational plan would have been completely different. The reason behind these sections not participating was because of work commitments,

however, the CEO should have been stricter and ensured one member of each section to be present at the workshops.

The concept of grouping similar projects under a Programme would have been interesting if implemented in GOV. Although there were several discussions on projects being repetitive and that was clear in the Knowledge Flow diagram, neither GOV employees nor the consultancy company proposed Programmes. This raises the question on the effectiveness of programmes and if they do more harm than good in project based organizations.

The flow diagram did not give a full picture of the entire knowledge flow of GOV. Other than the fact that the Business Support was not included, the diagram was based on processes, and GOV did not analyze this properly mainly because it did not have many processes. A recommendation would be to create another flow focusing on project based knowledge, for example project plans, WBS or budget documents.

Regardless of whether the implementation of Knowledge Management in GOV was successful or not, it can be argued that although Knowledge Management is a new business concept, organizations should be confident in implementing it, and they must select the frameworks, tools, methodologies and strategies that fit their business needs and objectives using the tools presented in this research

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