# An Analysis of Knowledge Management Process for SMEs in Developing Countries: A Case Study of SMEs in India and Thailand

Kitimaporn Choochote

***Abstract*—Over the past two decades there have been significant strides in the area of knowledge management, so much so that today it is considered a discipline on its own. Even though there has been much work done in the area, there is a significant bias towards large companies. Because of this bias, there is a shortage of studies which have covered Small and Medium Enterprises (SMEs) and more specifically SMEs in developing countries. It provides a framework for objectively obtaining an estimate of the knowledge management process of companies, by investigating attributes which are related to the knowledge management process. The results of the study provides insights into SME's understanding of the knowledge management process and it is based on these insights that recommendations are made on how SMEs in developing countries can deploy a robust knowledge management system using primarily free and open source software and enhance their knowledge management process.**

***Index Terms*—Knowledge management, Small and medium enterprise, developing country**

## I. Introduction

Signs of a Knowledge Management Boom are visible everywhere in the modern world. There are knowledge management conferences, journals on knowledge management, new corporate titles such as Chief Knowledge Officer, etc… [1]". The impact of effective knowledge management on organizational performance is well recognized and accepted. Knowledge has become one of the most valuable resources of an organization, and knowledge management is the foundation for sustainable competitive advantage. Larry Prusak of IBM stated, at the first annual U.C. Berkeley forum on Knowledge and the Firm, that, "There is an emerging new theory of the firm, one that recognizes the growing complexity of work, products, and organizations." He concluded, "The only sustainable competitive advantage comes from what you know and how fast you can put it to use [2]". The statements above suggest knowledge management is one of the keys required to unlock the door(s) to organizational effectiveness and competitive advantage in many types of organizations. It has been shown in past studies that knowledge management enhances organizational effectiveness in business and government organizations, as well as in non-profit organizations and military organizations.

It can be argued that small & medium enterprises (SMEs) usually constitute the base of the economy in most countries. The role of SMEs may vary, depending on the economic status of each country. For example, developed countries support SMEs as a mechanism to prevent monopoly and encourage market competition. Additionally, SMEs help to generate new products to expand in the global market.

In the past, developing countries with smaller economies, focused on supporting large enterprises because the large enterprises tend to employ a large number worker, recently this perception has been changing; SMEs are now being considered as organizations which are creating employment in various fields. Unlike large enterprises, which tend to be centered in major urban areas, SMEs cover the whole region. Governments are realizing that support for SMEs helps to reduce the gap between development in the big city and in rural areas. However for SMEs to be successful, legislation has to be established and enforced to support them. But, government intervention should be kept to a minimum so as to preserve Adam Smith's free market principles. Normally, most countries will take the role of regulatory function and will allow market rationality and plan rationality to enhance efficiency and effectiveness in SMEs.

Manuscript received March 9, 2012; revised April 18, 2012.

K. Choochote is with the Department of Management Sciences, University of Pune, India

## II. Literature Review

### A. Knowledge Management in SME

High-tech SMEs, the size difference between SMEs and large size enterprises (LSEs) gives them certain behavioral advantages like rapid decision making, flexibility, less strict regulations, governmental support, fast internal communication rather than material advantages like possessing research facilities, access to external capital, professional management, risk spreading [3]. These characteristics cause SMEs and LSEs to play different roles in society [4].

Knowledge Integration by SMEs – Practice, Knowledge integration (KI) is the process of external knowledge identification and acquisition, and internal utilization of external knowledge [5]. It is an activity of the knowledge management process. There are a large number of solutions for KI problems. In 2005, Kraaijenbrink, Groen and Wijnhoven conducted a study to investigate the 'use of' and 'satisfaction with' various prominent methods for KI. They separated the methods for KI into two categories; those which used software and those which did not use software. The respondents of the study were SMEs which belonged to the high and medium-high technology categories. Codification – Knowledge Maps, besides knowledge integration another important aspect of the knowledge

management process is knowledge codification and dissemination. Knowledge codification takes place when knowledge is written down in books and manuals, stored on films (e.g., instructional videos) or embedded in everyday work procedures or software (e.g., diagnosis software, expert systems). These media are widely used and serve the purpose of articulating, transferring and storing explicit human knowledge. Knowledge maps, in contrast, do not attempt to codify the knowledge itself, but rather to codify "knowledge about the knowledge". Like geographical maps, they guide the way and help to find knowledge, either in the form of knowledgeable people and experts or in the form of knowledge media [6]. Knowledge maps are extremely useful for the dissemination and retrieval of knowledge. Furthermore, knowledge maps are used to structure a knowledge domain in order to provide a shared understanding and common vocabulary and to preserve meta-knowledge about a topic [7].

In many cases, however, knowledge domains are unstable: because of shifting business environments (e.g., new markets, technological progress), formerly important knowledge can lose its relevance, while new knowledge becomes important. Knowledge maps can be employed to analyze shifting knowledge territories by codifying the different individual views or "mental models" people have about reality. These models can be transferred to other people, assessed, updated, and improved, subsequently leading to increasingly adequate shared mental models of reality [8]. SMEs can perform knowledge codification duties easily by utilizing freely available software like Free Mind™.

In various countries, either classified as developed or developing ones, the definition and the importance of SMEs are similar. However, the intention in looking for new approaches in order to make SMEs a genuine source of national revenue might be different.

## III. Research Objectives

Considering the need for research, the objectives for the proposed research are identified as:

1) To investigate the knowledge management processes of SMEs' in the automobile components
2) manufacturing industry operating in Pune, India and Bangkok, Thailand.
3) To study any other relevant issues arising during the study.

## IV. Framework and Research Design

Before the framework for analysis is presented some time must be spent in discussing its origins. Even though a lot of work has been done in the area of knowledge management in the past 20 – 25 years, much of this work is done in context with large companies and many times the results of these studies are not applicable to SMEs or are too expensive to be a viable option [9].

Often SMEs overlook simple solutions which would increase their productivity and competitive advantage. SMEs fail to devote enough attention to technologies and tools such as groupware, data mining, semantic networks, knowledge maps and content management systems which provide the technological foundation for a knowledge management process. Many times it's the case that these tools and technologies maybe freely or cheaply available, but because the interest is not there within SMEs these tools are not used. In the book Knowledge Integration it is suggested that SMEs need to work smarter and should spend some effort educating professionals in the use of tools which may potentially tap their knowledge reserves. But in order to use knowledge management software tools the requisite information technology (IT) infrastructure must be in place. Having good IT infrastructure upon which knowledge management software tools can be deployed as well as having company policies which are conducive for knowledge creation and sharing combined with other relevant factors yields a good knowledge management process for SMEs. The diagram in Fig. 1 summarizes this point and is used as the framework for analyzing the knowledge management strategies of the sample.

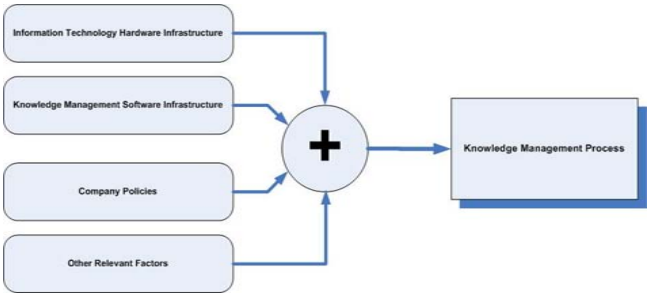


Fig. 1. Knowledge management framework for SME.

The model consists of four components which when effectively combined produces a solid knowledge management strategy for SMEs. Below is an explanation of each component:

• Information technology infrastructure – this component primarily focuses on the computer hardware, software, storage, and networking setup of the organization. It is the foundation for the knowledge management software tools component of the model.

• Knowledge management software tools – This component comprises of a variety of software and tools; some of which are described in the following list:

- Groupware (collaborative software)
- Data mining software
- Semantic networks
- Knowledge maps
- Content management systems

• Company policies – This component refers to what mechanisms, culture and rules the company has which affects the creation, distribution and management of knowledge. Issues such as: clearly set goals, communication of goals, marketing plans, commitment to change and innovation, incentives for employee innovation and performance and company management style.

All contribute to the creation, distribution and management of knowledge assets.

• Other relevant issues – this component is a bit dynamic since it can include factors like expert consultation and customer related activities. It is up to the SMEs to be cognizant of their working environment and capitalize on opportunities which may sporadically arise.

## V. Profile of the Samples

The sample was selected based on the willingness of companies to participate in the study. A preliminary meeting was held with the respective Chambers of Commerce in Pune and Bangkok to establish willingness and whether companies met the criteria for the study. Based on these meetings, 20 companies were selected from Pune and Bangkok.

The sample size of 20 may seem small when compared with a true population size of approximately 6,000 in Pune, India and 430 in Bangkok, Thailand, however many of the companies which comprised the whole population were not classified as SMEs (either micro or large enterprises) and hence were not suitable for this study. The sample size of 20 from each country was deemed appropriate when this fact was taken into consideration.

## VI. Assessment of the Knowledge Management Process of the Sample

### A. India

From the analysis the Indian sample has demonstrated the belief that it has the company policies in place which are necessary for a strong knowledge management process. Additionally, the sample seems to have a clear understanding of the products and services offered by private and international organizations. With reference to IT infrastructure, the Indian sample was found to be lacking in the areas of having IT professionals on staff, employee IT training, IT investment and training investment. In the Thai sample it was found that all the companies had at least one IT professional on staff, when compared with this the Indian companies seemed to be lagging behind.

As for the use of specialized software which support component two of the framework only 50% of the companies in the Indian sample used such software tools.

Unfortunately, the Indian sample did not invest much in advertising and depended mostly on word of mouth advertising. This was a weakness that should be addressed urgently. In a time when economic factors are good the company may perform fairly well, however when economic conditions are bad and companies have to source and attract markets, they will be lagging behind their competitors who would have been investing in advertising all the while.

So an assessment of the knowledge management process of the SMEs in the Indian sample suggests that much emphasis is placed on the company policies which are necessary for a strong knowledge management process for SMEs; however more effort and resources need to be devoted to advertising and the technological aspects of a sound knowledge management process. The Indian sample needs to address these shortcomings given today's business competitiveness and challenges and to push their knowledge management process above an average rating.

### B. Thailand

The Thai sample seemed to demonstrate superior IT infrastructure over the Indian sample. Their investment was slightly better than the Indian sample and all the companies had at least one IT professional on staff. However, it was found that the sample was neglectful in areas such training and investment in training.

In the Thai sample 90% of the companies used specialized software which supports component two of the analysis framework. However coupled with the fact that there was little IT training or investment in IT training suggests that only the IT professionals have knowledge of the use of the specialized software and time is not taken to teach other employees. There may be several reasons for this, such as trust issues, however this type of approach is not conducive to a healthy knowledge management process.

On the issue of company policies, similar to their Indian counterparts, the Thai sample demonstrated they have the policies in place to support a strong knowledge management process.

This is a trend that should be remedied once cost is not prohibitive. The companies need to invest time in investigating what services are available which could lead to a competitive advantage.

On the issue of advertising the Thai companies were leaps and bounds ahead of their Indian counterparts. The Thai companies recognized the need for a strong advertising program and this contributes positively to their knowledge management process.

All in all the Thai companies have demonstrated a slightly above average knowledge management process. However they need to explore the possibility of using government and private and international organizations support as well as look into training other staff in IT technology.

## VII. Conclusions

There are two factors among others which standout as an explanation for the results. The first and most influential factor is the SMEs' understanding of the knowledge management process. Knowledge management and its potential benefits are still in its infancy stages in developing countries. Due to this immaturity there is significant naivety in the understanding and implementation of knowledge management processes in the context of SMEs. The samples' perception of their knowledge management processes was adequate, but their perceptions were not reflected in their sales performance. This mismatch is attributed to the fact that their understanding and thus implementation of the knowledge management process was flawed. From this conclusion the recommendations of this research are abundantly applicable.

The second factor which most likely had an effect on the results of the study was the state of the economy at the time of conducting the study. There was a boom in the auto components industry in both India and Thailand. The economic climate created a condition where manufacturers

could sell their products and services without having to invest in machinations which produce a competitive advantage. This type of climate obscured the weaknesses in the SMEs' management and knowledge management process and thus created the perception that the knowledge management process was functioning effectively. In addition, two reasons were cited for causing the results of the study to deviate from established literary works. The first of these reasons, the SMEs' understanding of the knowledge management process, was believed to be the most influential factor concerning the results of this study and will be addressed in the recommendations section of this chapter. The second reason, the state of the economy at the time of conducting the study, was believed to be less impacting and is a function of the economic climate, which SMEs do not have control.

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