

A Descriptive Study on the Impact of Knowledge Creation Mechanism on Organizational Performance: A Case study in Malaysian Automotive industry

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Abstract

The process of continuous improvement is one of the significant and predominant programs in most of the manufacturers all over the world. These struggles constantly look for improvement breakthrough that it is necessary for achieving efficiency and effectiveness to maintain sustainable quality processes and competitive advantages as well. Moreover, quality is one of the major competitive advantages that it is crucial for improving efficiency. Nowadays, many of company in global market are developing programs to achieve and deploying this process. In this study, we are going to illustrate the influence of knowledge creation mechanism on improving the quality process and its impact on organizational performance. This study applied the framework from Nonaka (1994), called SECI model for creating knowledge. This research focused on an automotive manufacturer companies. Besides, the roles of six sigma and continuous improvement process (CIP) were clearly discussed. Moreover, the profound roles of knowledge creation in terms of socialization, externalization, combination and internalization as a model on quality process were examined.

Keyword: CIP, Six Sigma, Organizational Performance, Knowledge Creation

1. Introduction

Currently, societies are experiencing an industrial advance world which has engaged the every scientist's intelligence. Globalization is one of the most important and common in the international markets and its effect on human being's life demonstrates at all the levels of life (Goodarz, 2012). Most of the Companies are also in search of more opportunities in multinational companies; so it makes an international competition among the firms (Samin Rezvani, 2012). This research examined the correlation between continuous improvement and its influence on the organizational performance and the knowledge creation. Additionally, it considers the impact of continuous improvement on bringing forth to the knowledge creation and establishes theoretical and reciprocal links between the quality management and the knowledge management. These relationships are empirically tested using survey data. The purpose of this study is defining the knowledge creation factors and the role of creating knowledge expedited by continual improvement through get sustainable competitive advantages.

The Knowledge creation is arranging and formatting new idea by interacting between two types of knowledge (tacit knowledge and explicit knowledge) in human minds. As proposed by Nonaka, the knowledge creation involves of socialization (tacit knowledge to tacit knowledge), externalization (tacit knowledge to explicit knowledge), combination (explicit knowledge to explicit knowledge), and internalization (explicit knowledge to tacit knowledge).

2. Literature Review

The consumption's growth and credit purchases' possibility enhancing in the international markets has provided an exceptional opportunity to purchase (Hamid Reza, 2012). In order to having superior and sustain competitive advantages, new perspective and new scheme must acquire, retain, participate, and create knowledge. The knowledge creation mechanism's theory characterizes a company as a unit to dynamically create knowledge (Nonaka, 1994, Konno, 1998, Takeuchi, 1995). According to Nonaka (2005), this process is crucial for new venture to achieving new product development and other activities, so knowledge interaction prepare condition for the employees to pile up current knowledge not only for serving customer, but also for improving processes and goods (Nonaka and Toyama, 2005).

As mentioned earlier, the interaction between tacit and explicit knowledge in the knowledge creation determined four sorts of creating knowledge process that included: socialization, externalization, combination and internalization. To examine the impact of knowledge creation mechanisms at this survey assume the SECI model (Nonaka, 1994) for tree significant reason. First of all, SECI model that is the most popular model in knowledge creation. Second of all; this model focused on the knowledge transfer and the knowledge creation, and last his model has been applied in many studies (Nonaka, 1994; Nonaka& Konno, 1998; Nonaka & Takeuchi, 1995). Senior managers who direct control a company and participates implement a quality program (continues improvement process CIP and six Sigma program) to consciously improve

their successes probability (Antony, 2007; Banuelas, 2006).

Moreover, they create, control and influence environment where the different projects implement and employee dedicate their time for attain efficiency and effectiveness. The quality processes and continues improvement processes, as they can be clearly recognize by their names, but there is not one use. Those programs continuously need to improve and change. In addition, this process implements by employees in organizations (McAdam and Lafferty, 2004; Roper, 2005).

Changing the process emphases to the internal environment and culture in company, also an internal communications is a vital factor for deploying the change process, continues improvement, and every effective implementation programs. On the other hand, structured communication and knowledge interaction's effectiveness support learning, and make immense opportunities for a company that provide knowledge and transfer to the related department (Daly, 2003; Henderson and Mc Adam, 2003).

Based on the difference between six sigma and other quality process for instance Lean and TQM in having organizational framework for problem solving, Improvement process take place through the DMAIC (define, measure, analysis, improve and control) process. So, the DMAIC focuses on gathering massive information and knowledge and improving the current and also future activities and future processes (Bigio, 2004). This dynamic environment cause to continually improve process, acquire sustainable competitive advantages and customer satisfaction.

2.1 Continuous Improvement Process (CIP)

It is an unending effort to improve products, services, or processes. These processes can be conducted as "incremental improvement" or "breakthrough improvement" over the time. Furthermore, these efforts are constantly examined and enhanced in terms of efficiency, effectiveness, and flexibility.

2.2 The Mechanism of Knowledge Creation

Massive information that held by every human being (normal employees, operation managers in this case) that usually they are not written, spoken. They concealed knowledge founded on her or his emotion, experience, insight, observation, and perform and internalized information.

2.3 Tacit Knowledge

It fundamentally acquired by relation and through association with others. On the other hand, it is not separated from people. In addition, it needs to interaction or shared activities to be conveyed from on to another. The Concept of tacit knowledge (informal knowledge) was

introduced by the Hungarian philosopher-chemist Michael Polanyi¹ (1891-1976) in his 1966 book entitled "The Tacit Dimension".

Moreover, it is the internal knowledge that is complicated to share and transmit with others. That means the insight that the holder could not share with others easily and smoothly. In other words, this is a subjective awareness and valuable personal knowledge. It has two aspects: technical and cognitive. It may be understood from the names. Technical dimension is related to personal skills, indirect, and informal knowledge.

2.4 Explicit Knowledge

It is codified and formulated knowledge. The systematic process to creating and achieving knowledge is explicit knowledge. It clearly applied the new mechanism and methods and also it could be illustrated as number, table, and form and diagram as well. Consequently, it pays attention to their structure and shape could be effortlessly changed and transmitted to others, due to the fact that it has the comprehensible structure and systematic.

3. Problem Statement

In this research, "The reciprocal role, impact of knowledge management, and quality processes for firm performance's qualities are identified as an important purpose in every manufacturer company at automotive industries and the quality process is most important in automotive companies in Malaysia. As a result, refine and illustrate position of knowledge creation in continuous improvement seems not only help to know the position of them, but also to categorize and give some advice to process improving the knowledge creation process.

3.1 Research Area & Research Questions

The scope of this study is regarding the factors influencing knowledge creation mechanism and quality programs precisely six sigma CIP in automobile manufacturer in Malaysia. Knowledge is something that is dissimilar from information and knowledge creation, and its goal is a complex procedure that works on people's social interaction (Roozbeh Hojabri, 2012). This research will mainly focus at first on operation managers and other managers in different departments and employees specifically in the production operation. Both of the employees and the managers were chosen to gain extensive view of process of six-sigma and knowledge creation.

The research aim is to answer following questions:

¹ Smith, M. K. (2003) 'Michael Polanyi and tacit knowledge', the encyclopaedia of informal education, www.infed.org/thinkers/polanyi.htm

1. What are the factors generating successful knowledge creation and quality process in manufacture company?
2. How to use knowledge creation to quality process as a tool for improving continuously?
3. What the role of creation knowledge mechanism is in continues improvement?
4. What is the role of creation knowledge mechanism in firm performance (competitive advantage)?

3.2 Research Objectives

The overall objectives of this research is to gain better understanding of relationship between knowledge creation mechanism based on SECI model and the quality process, the objectives are as follows:

1. To identify relationship between in knowledge creation and six-sigma/ continues improvement process.
2. To identify role of factors' knowledge creation mechanism (socialization, externalization, combination and internalization) in deploying and implementing CIP and six sigma program to firm performance and competitive advantage.
3. To compare impact of socialization and externalization than combination and internalization in continues improvement process and Six Sigma.
4. To study relationship between the SECI model and knowledge creation mechanism.
5. To analyze the role of six sigma programs and CIP on socialization, externalization as two tacit knowledge base.
6. To determine quantitative approach to explore Six Sigma based on knowledge creation.
7. To define the impact factors in environment that six sigma projects can operate effectively and efficiently

4. Knowledge Creation's Framework

Based on the Nonaka' theory in the name of SECI model, knowledge creation is the correlation process between two module of knowledge that terms tacit and explicit knowledge. In the other word, knowledge is created with reciprocal action and two-side influence between this to knowledge. The relation between tacit and explicit knowledge have been depicted in table 1.

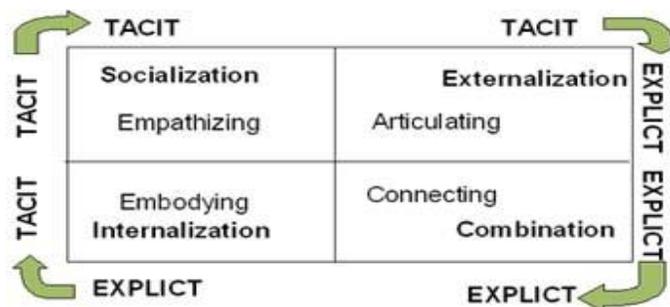


Table 1: Interrelation between tacit and explicit knowledge

This model provides a dynamic environment for knowledge and knowledge creation and also provides a framework for management in different phases.

4.1 Socialization

Tacit → Tacit

In nutshell, it means the knowledge that is created by the direct interaction to people. Acquiring knowledge by physical relationship makes knowledge that term's socialization. Tacit knowledge that defined in before in connection to others attained this knowledge. This mode of the SECI model, convey tacit to tacit knowledge that will be provided by interaction between people. Spending time and living together and same place would provide this process.

4.2 Externalization

Tacit → Explicit

The base of the externalization mode is the tacit knowledge. In this mode we follow the process and methods that make the regular and systematic knowledge by tacit knowledge. This knowledge would be clear and comprehensible to all. This mode has two step from start to end first step could be defined to categorize and to articulate the tacit knowledge is means the methods and ways that made tacit knowledge that could be shape as idea and image in the brain (subjective) to words, visuals and symbolic. Then, as a second step it is preparing understandable form of that tacit knowledge.

4.3 Combination

Explicit → Explicit

Combination that is the explicit to explicit knowledge is the passes that collect organize knowledge like report then to analyze and organize them to new format. As an example; in finance department that collect all of the reports in all departments and then, after some changes (analysis and systematize) to save that information. On the other hand using useful information that is gathered in database for different aims such as different business reports is one of the combination phases in the knowledge creation process.

4.4 Internalization

Explicit → Tacit

In this stage, explicit knowledge is changed to tacit knowledge and will be shared in across through of the organization. In this phases explicit knowledge practice and read by people in organization and then will be expanded by individual learning. In socialization, Organizations

tries to share the written knowledge to learning and practicable knowledge. In the other world the companies offer the training and learning course to people for transferring the explicit knowledge to tacit knowledge and attempt to create new knowledge in internalization phase.

4.5 Gap

The role of each type's of knowledge in knowledge creation and amount of their effects on quality and finally effects on their roles in performance and efficiency of company. In the other word, we try to identify the existent relation between knowledge types and measure the outcome of them in quality process in interaction way. Finally, find the rational relation to company performance.

5. Automotive Companies In Malaysia

PROTON cars are making their mark internationally as competitive and innovative automobiles. They are now being exported to 50 countries including the highly competitive United Kingdom and continental European markets. With concerted and unswerving commitment from customers, business associates, shareholders, government agencies, and employees, PROTON is realizing its goal of being an internationally successful Malaysian automotive manufacturer. It is achieving this by being customer oriented and by producing competitively priced and innovative products. Thus, it is contributing to Malaysia's attainment of Vision 2020.]*²

6. Research Methodology

6.1. Theoretical Framework

The following graph (Fig 1.) demonstrates the conceptual framework which has been employed for this research study.

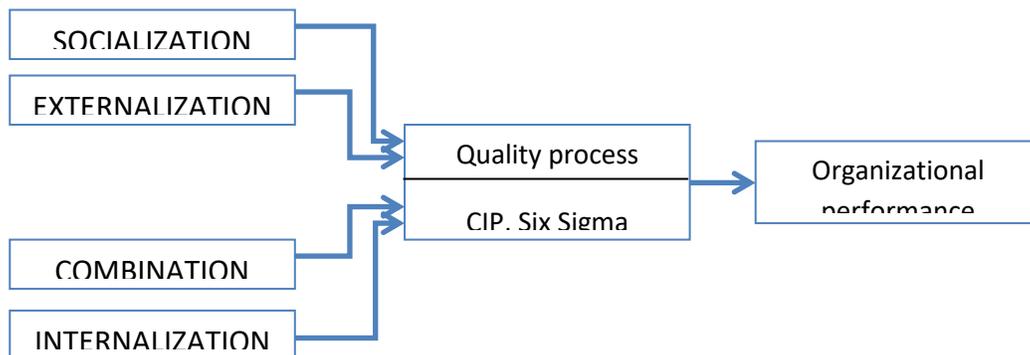


Fig 1: Conceptual Framework

² Source: Proton company, "Proton Posts Loss as Sales Slump to Lowest in 7 Years (Update2)". Proton.com. Retrieved 2012-06-28.

Hypothesis Development

H₁: **Socialization** has a significant impact on continues improvement and Six Sigma.

H₂: **Externalization** has a significant impact on continues improvement and Six Sigma.

H₃: **Combination** has a significant impact on continues improvement and Six Sigma.

H₄: **Internalization** has a significant impact on continues improvement and Six Sigma.

7. Sampling Method

7.1 The Target Population and Select the Appropriate Sampling Method

Employees and managers from Malaysian automotive manufacturers were targeted as sample population. The target respondents were selected from two categories of white and blue-collar employees including operators, technicians, in addition to engineers and top managers. The non-probability sampling method was selected as a core methodology in collecting data. Overall, 250 respondents were selected from Automobile manufacturers companies to fulfill the questionnaire in addition to structured interview with senior managers in different departments.

8. Data Collection

The primary data in this research project were collected by questionnaires. This research applied a simple random sampling approach. Besides, an email surveys were employed for self administered questionnaire. The secondary data, which have been used to carry out this research project, are mainly from journals, articles and reference books. The secondary data were collected from library and online databases.

9. Data Analysis

This paper is part of ongoing thesis and just discussed in terms of reviewing the literature and research methodologies. In following papers by authors, the research analysis and result will be discussed elaborately.

10. Conclusion

In this research, we identify the relation between performance and also one of the most important features of performance in automotive companies that are Quality to attain the competitive advantage. With using of SECI that illustrate the interaction between different type of knowledge (tacit and explicit) and also relation between them analyze quality process in organization. Furthermore, this process analyses the role of every part of knowledge creation model (SECI) in the quality process and the reciprocal effect of quality process in knowledge creation.

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