

Knowledge Integration within Corporate Life Cycle

Abstract

The purpose of this study is to investigate how knowledge management can be implemented within their organizations through life cycle stage. Life cycle theorem is adopted in both organizations development and knowledge management stages. Knowledge possessed by a business can be represented as a strategic resource which can create competitive advantages. And Knowledge-based competitive advantages will be eroded if the company does not continually update. Several interesting findings are discussed in this study. For example, how the sizes of the organizations impact their efficiency when implementing different knowledge management strategies. And at different stages of the product development which knowledge management strategy is most appropriate to choose from.

This study also explore the uniqueness that the life cycle of the business possesses a role of its own apart from that of the business size with activity-based costing. Earlier studies report that the use of activity-based costing increases as the size of the firms is increasing; although firms in the maturity and revival phases are often larger than firms in a growth phase, not all mature or revival firms are necessarily large in size.

Keywords: Knowledge Management, Life Cycle, Organizational Development.

1. Introduction

People know that knowledge-based competitive advantages obtained by a company are in need of continuous update. However, how to bring out the optimal effects of knowledge management and gain more profits for organizations still remains difficult. As presented by Kjærgaard & Kautz (2008), knowledge management is not really an issue in itself, but knows where to do is. Burgers et al. (2007) highlight that technological and market knowledge should have a different effect on exploitative versus exploratory innovations and on project autonomy.

This study tries to understand which stages of the Knowledge Management (KM) cycle should be applied in individual case. As shown in a range of industries, strategic advantages depend on how organizations mobilize, combine and create knowledge. In advanced industrial economies, this is not only transforming knowledge into high

value-added products, but seeing knowledge as a core of almost every activity of the firm. This has long been self-evident in nascent industries such as biotechnology, nanotechnology or robotics where knowledge mostly fuels innovation. Beside, it is well-acknowledged that in established industries such as construction or aerospace where upgrading knowledge of design and production is essential for continuous improvement (Lampel et al., 2008). The main point when managers come face-to-face with this paradox is actually the heart of the knowledge-based economy: Organizations are becoming increasingly reliant on knowledge when knowledge-based advantage is eroding more rapidly than ever. In knowledge-based environments these strategic advantages revolve around the role that projects play in exploiting and enhancing the knowledge base of the firm. In effect, they must also become sites and opportunities for the creation, mobilization and integration of knowledge. This study intends to address the concept presented above and further adopt them to a golf product manufacturer in Taiwan with four product pipe lines included.

2. Literature Review

As a result of a more complex, more challenging and more competitive business environment, the administrative task of mature and revival firms is more complex than that of growth firms. This creates a need for a more sophisticated decision-making approach utilizing sophisticated management accounting systems such as activity-based costing. Furthermore, firms in the growth phase put emphasis on growth and on expanding their market shares, whereas firms in the maturity and revival phases put clearly more emphasis on minimizing production costs in mature, highly competitive markets rather than on growth. This is because increased competition decreases the profitability of the firms in the maturity and revival stages. Therefore, cost-effectiveness and profitability are more important in the maturity and revival phases than they are in the growth phase. Consequently, firms in the maturity and revival phases put more emphasis on formal controls, such as formal cost controls, as they need to produce products efficiently and earn adequate profit margins on a more competitive market.

The life cycle literature suggests that the organizational size of the firms is greater in maturity and revival phases than it is in the growth phase. As Chenhall and Langfield-Smith (1998) point out, greater organizational size leads to greater complexity of tasks, this requires more division of labors. The specialization of tasks leads to more extensive differentiation. As a result, it becomes more difficult to

ensure that organizational subunits are acting towards the achievement of a common purpose. Management accounting innovations such as activity-based costing are examples of such information systems. In addition, firms in the maturity and revival stages as result of greater organizational size have greater resources to experiment with administrative innovations such as advanced management accounting systems. In sum, greater organizational size and greater resources can be expected to lead to more widespread use of activity-based costing among firms in the maturity and revival stages as opposed to firms in the growth stage.

In addition, the life cycle literature also suggests that firms in the mature and revival stages have been more centralized, more formal and bureaucratic organizational structures as opposed to firms in the growth stage. It follows from these results that the use of the activity-based costing should also be more common among firms in the maturity and revival phase than among firms in a growth phase due to the more centralized, more formal and more bureaucratic organization structures of the mature and revival firms. The knowledge possessed by a business represents a strategic resource that can create competitive advantage. A firm's knowledge is the result of years of organizational activity in which the knowledge of individuals is combined into a collective whole (King & Marks Jr, 2008).

New organizational knowledge can also emerge unexpectedly during a project. Solutions and ideas developed by team during a project management process may contribute to develop useful routines for the firm (Quinn & Cameron, 1983). Bartol & Srivastava (2002) define knowledge sharing as the action in which employees diffuse relevant information to others across the organization. According to Bock & Kim (2002), knowledge sharing is the most important part of KM. The ultimate goal of sharing employees' knowledge is its transfer to organizational assets and resources (Dawson, 2000). Additionally, sharing activities have to be voluntary and cannot be forced. That means by which knowledge is shared within organizations and the factors that facilitate knowledge sharing are core issues in KM. The terms knowledge sharing and knowledge transfer are often used interchangeably. Recent research on knowledge transfer "has adopted a source and recipient generic model", The research on knowledge sharing that has emphasized the collective character of knowledge emerging from interaction and dialogue among individuals.

In order to analyze knowledge sharing in more detail, the properties of knowledge have to be taken into account (Renzl, 2008). Because even the existing knowledge of the business is not always sufficient to meet business, businesses often have to act to

mobilize and absorb knowledge from the wider environment (Sabherwal & Sabherwal, 2005). Examples of knowledge mobilization here include one of the businesses studied by Burgers et al. (2007). In this project, existing products were modified using licensed technology. Argote's (1999) research on organizational learning shows knowledge is retained in three different memory systems: individual memory, an organization's information technologies and tools, and its structures and routines. Project implementation often requires combining skills and ideas from disparate sources. In many instances, this combination is short-term and project-specific. In other words, knowledge is combined to serve the goals and deliverables of the project, but is thereafter allowed to disperse.

The knowledge base of large organizations is segmented, one role which projects often play is to enable the integration of knowledge between different sub-units. Burgers et al. (2007) provides a useful example of knowledge integration by highlighting the role of new business projects in integrating technological market and technological knowledge. The role which projects play in accessing knowledge is not confined to activities within the business alone. Projects are situated within a web of relationships which may extend well beyond functional or organizational boundaries.

3. Methodology

The goal of this study is to recognize how to develop most effective strategy in each business stages, where three of fourth stages of life cycle are discussed. The ontological and epistemological assumptions of the study are informed by the interpretive paradigm, and accordingly the role of the members is understood as active constructors of meaning as well as active interpreters of reality. This study devised the life cycle of KM into three phases, creation and storage, sharing and extraction. The creation and storage phases mean the corporate to dig out the existing knowledge into the operating process and then store inside knowledge base. The sharing phase means employees to share their personal tacit knowledge. Therefore, the KM implementation matrix (Table 1) is constructed and used to explore KM life cycle.

Table 1 KM Implementation Matrix

	Introduction	Growth	Maturity
Capture	urgency		
Sharing		urgency	
Integration			urgency

Studies about organizational life cycle suggest that the characteristics of organizational change with the product lifecycle stages. In the introduction stage, the prime distinguishing feature of the firms is that they are young, dominated by their owners, and have simple and informal organizational structures. For this reason, the introduction stage is also referred to as an ‘entrepreneurial stage’. The founders of these firms are technically or entrepreneurially oriented, preferring to keep management activities to minimum. They prefer to devote their efforts to developing and selling new products, and they mainly rely on a minimal amount of information in decision-making. The growth stage occurs once the business has established its distinctive competences and has achieved some initial product-market success. In the growth stage, firms are characterized by rapid sales growth, which rely more on formal rules and procedures to ensure organizational and administrative efficiency. This is due to the expansion of activities and products and increasingly centralized structures. Some authority is delegated to middle-managers who devote greater effort to collecting and processing information needed in decision-making. Growth firms extend their product ranges, but this results in a more complex array of products for a given market rather than positions on widely differing markets (Miller & Friesen, 1984).

The maturity stage follows the growth stage as the sales levels stabilize and the level of innovations falls. In the maturity stage, the administrative task of the business becomes more complex, which in turn leads to formal and bureaucratic structures. In fact, Quinn & Cameron (1983) define this stage as the ‘formalization and control stage’. Mature firms place more emphasis on efficiency and profitability and on strategies replacing innovations. A few recent studies have applied the Miller & Friesen (1984) typology to the life cycle stages of the business in connection with management accounting. Auzair & Langfield-Smith (2005) measure the life cycle stage of the business using a self-categorization measure proposed by Kazanjian & Drazin (1990), and report that organizational life cycle, among other contingent variables, has a significant effect on the design of a firm’s management control systems. Davila (2005) reports that the size and age of the firm, the replacement of the founder as CEO and the existence of outside investors are drivers of the emergence of

management control systems. Finally, Moores & Chenhall (1994) explore the use of management accounting systems at different life cycle stages and find that the formality of the management accounting systems varies across life cycle stages.

The knowledge stages and business develop life cycle matrix is used for understand what the most important strategy is in each stage. Business in an introduction stage is in the beginning of produce development life cycle. In this stage, most knowledge is tacit and existed in the development or personal experiences. The most important action in this stage is to create or store knowledge for future use. Using Information technology (IT) or Information system (IS) might be helpful to speed up this routine work and make it effective and effectiveness. The product life cycle literature implies that there are several reasons why the use of advanced management accounting systems such as activity-based costing is greater among firms in the maturity and revival phases than the systems are used in the growth phase. These reasons are due to differences in the administrative task, business environment, strategies and organization structures between firms in different life cycle phases.

The maturity stage is after the growth stage as the administrative task of the business becomes more complex, which in turn leads to formal and bureaucratic structures. Meanwhile, the sales levels are stable and the level of innovations is going to fall. In this stage, mature firms place more emphases on efficiency and profitability and on strategies to back up the loss of incentives from new innovations. In a maturity stage, as the sales of the business is going off, more formal and bureaucratic organization structures are established and innovation declines. Although the firms in the maturity and revival phases are often larger than the firms in a growth phase, not all of them are necessarily large in size. In other words, even small firms are likely to use activity-based costing if they have a managerial need for an advanced cost-accounting system. Maturity firms experience increased diversification in their products and markets too. Therefore, not only the complexity but also the densities are both increased, to extract knowledge from the existed routine process is necessary and urgency.

4. Case study

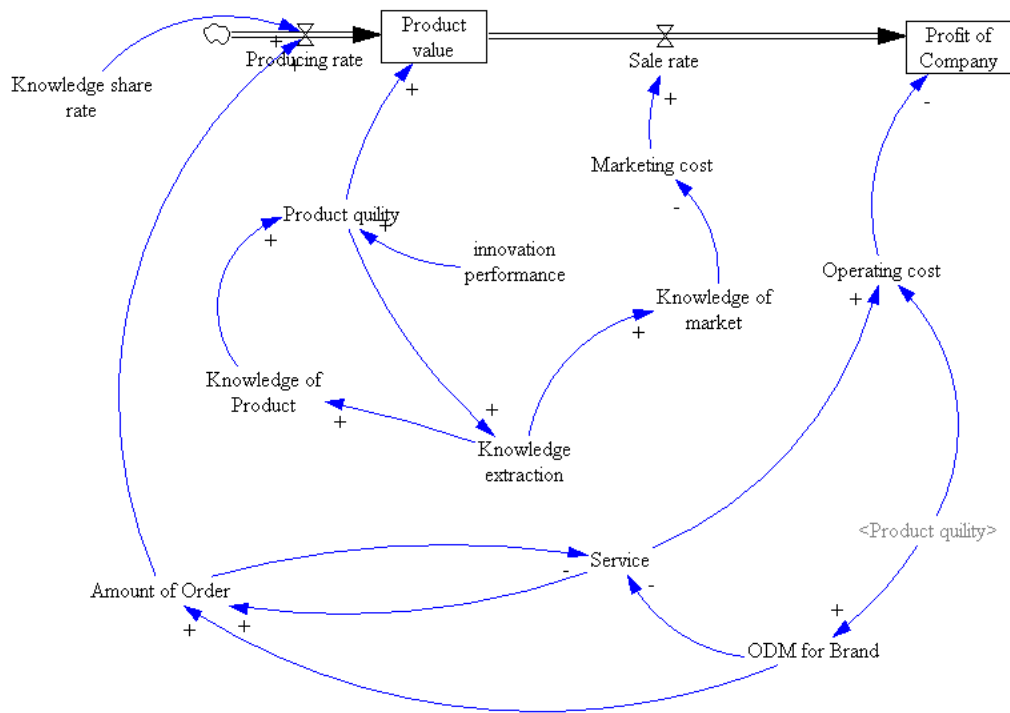
The golf industry has its hay-day from 1980 to 2000 in Taiwan; but by the influence of the economy depression and inflation, the sales is getting worse now. Over the past 15 years, the golf industry has grown substantially and is expanding in a manner consistent with the most optimistic projections. Henry-Griffitts Golf Company was buying the products from Taiwan OEM foundries for almost 40 years.

Around 7 years ago, most foundries begin to move to China with only research and development center stays. Their product lines are classified into four types: Wood, Iron, Wedge and Putter. The lead time production for foundries takes around 60 days. Thus, usually Henry has to place orders 3 months in advance to keep up with production schedules.

O-Ta is the biggest golf product manufacturer in Taiwan, which offers various materials to the down stream in four types: Wood, Iron, Wedge and Putter. In 2007, O-Ta has about 80.92%, 83.81%, 88.52%, 78.15% Market share respectively in US market. In this study, the different product pipe lines in O-Ta are concerned with the KM implementation matrix which applies towards O-Ta's products four pipe lines with their individual life cycle trend.

Wood fluctuates because of its "higher demand of simulation and techniques to manufacture. The product is accordingly defined as in the growth phase of the organization development. Therefore, how to share knowledge between employees is first priority in this product line. Iron is in the decline phase for its decreasing market share, which is seriously devastated by the rivals from China. It is to say that Iron is easiest to duplicate than the others due to its lower techniques to manufacture. In this study, this product line is accordingly defined as in maturity phase. In this phase, the necessity of creation and storage knowledge has been relaxed. Sharing knowledge is essential and need to be continued. However, extraction knowledge is urgent to make difference. The flourishing Wedge is flourishing, defined in the introduction phase of organization development. Putter is show as a placid line. And this study defined it as an oligopoly market. Because of its low profits; there are only a few competitors left in this market. Therefore, business just only keeps the producing efficiency. And the knowledge share will be the most important goal.

Figure 1 is the KM share structure. In the introduction stage, there is no R&D department in O-TA. Whole knowledge is extracting from their suppliers and market. The key factor which impact profit of company is product quality. Most of businesses in Taiwan are capable of reducing production cost with sacrificing product quality. In this case, the authors suggest that an investment to improve their product quality is more valuable from strategic perspective, which also explains why business in Japan survives in the intense competition market.



5. Findings

Life cycle studies suggest that the use of management accounting systems depends on individual stage of organizational life cycle, as different systems are needed in different stages. In comparison with growth firms, the administrative task of mature and revival firms is more complex, they need to provide products/services cost-effectively to “earn adequate profit margins” on highly competitive markets, they experience increased diversification in their products and markets, they have greater organizational sizes and more formal and more bureaucratic organizational structures. Consequently, the use of the advanced cost-accounting systems such as activity-based costing should be more common among mature and revival firms than other growth firms. In this study, the issue regarding whether the use of activity based costing varies among firms in different life cycle stages is investigated.

The findings of Kazanjian & Drazin's (1990) study contributes to the management accounting literature by exploring the issue that whether the life cycle of the business has a role of its own apart from that of the size of the business in terms of the use of activity-based costing. Earlier studies report that the use of activity-based costing increases as the size of the firms increases but, although firms in the maturity and

revival phases are often larger than firms in a growth phase, not all mature or revival firms are necessarily large in size. The findings of this study support the previous results in that the use of activity-based costing increases as the size of the firms increases. More importantly, the findings from this study also indicate that the life cycle of the business has a role of its own apart from that of the size of the business when explaining the use of activity-based costing. This supports the view that not all mature or revival firms are necessarily large in size, but they have a greater need for advanced management accounting systems such as activity-based costing than many larger firms have.

6. Discussion

In this study, organizational identification has been utilized as a key point on compliance towards knowledge management initiative. Firstly, conceptual difficulties limit the development of a common vocabulary among members of the KM research community. Secondly, knowledge management is an interdisciplinary research area in which the references most frequently cited by the information systems researchers are from the management rather than information systems literature. Finally, knowledge management is in the early definitional or theory-building stage of being a discipline, in which the first principles, justification of concepts, questions and methods are often investigated.

The culture and language between China and Taiwan is similar, which makes many corporate to shift their techniques to China, the world factory. Therefore, cost reduction by a wide margin and enlargement of production scale make them conform to demand of market. The board of directors in O-TA predicted the demand of golf sector will increase still in both China and rest of the world. Therefore, they expand their capacity continually with sustained buying of new production equipments.

It is estimated that consumption of golf products with the high value will regain to the level before the Great Recession in 2008. Besides, Chinese market is emerging gradually with other developed country operates the financial goods in leverage, they win the backfire in a very short period of time. Although the economic growth rate is not as good as the past, it was growing up still. It is expected that Chinese market has more opportunity than others. And the markets of Korea, India, Southeast Asia and other emerging countries possess great opportunity to be explored.

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