

The Development of Knowledge Management Capability in Malaysia's Automobile Industry: The Case of Proton

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ABSTRACT

The aim of this paper is to present a broad historical analysis of the development of the knowledge management capacity of Malaysia's automobile industry torch bearer, Proton. The company was a joint venture company between the Malaysian government (through its investment arm, Hicom) and Mitsubishi of Japan. Over time, the government had relinquished its majority shares to DRB, a company owned by the now deceased Yahaya, a private entrepreneur. But subsequently after Yahaya's demise, DRB sold its shares back to the government through the latter's oil company, Petronas. The significance of these changes was that Proton is important to the government. It is important not so much as a car manufacturer but it is a mechanism for the Malaysian government to manage knowledge about the car manufacturing business (human resource management, engineering, R&D, marketing, production, purchasing, international business, supplier's management and finance) and the automotive industry at large.

Key words:

Automobile industry, knowledge, explicit knowledge, knowledge management, Proton, tacit knowledge

1.0 INTRODUCTION

Knowledge management is one of the areas of interest in organizations which has emerged in the 1990s. Initially it was of interest only to academics but from 1997 onwards, it became a burning issue for business and technology leaders. It probably exists under different labels much earlier. However, it has come to the forefront only recently with a renewed emphasis and perspectives probably because of increasing organizational complexity. Proton, a Malaysian automobile manufacturer, was established way back in 1985. At the time, the idea of knowledge management in organizational context was still unheard of. Yet the Malaysian government had some kind of philosophy to learn from the Japanese and manage the acquired knowledge to benefit Proton and the industry when they

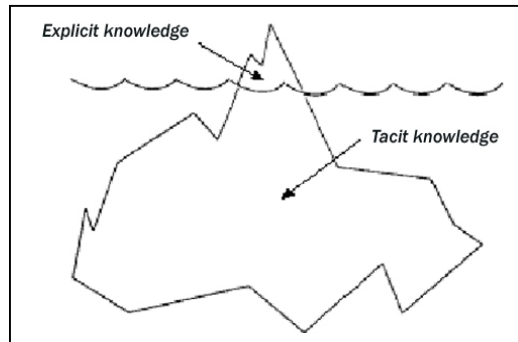
decided to set up the company knowing fully well that the Malaysians had no experience in the automobile manufacturing business. This paper intends to backtrack some of the development in Proton from the period spanning from 1985 to late 1990s and match them to the concept of knowledge management currently in use.

2.0 KNOWLEDGE MANAGEMENT

It is not the intention of this section to undertake a comprehensive review of the concept of knowledge management. However, it reviews the essence of the knowledge management concept so as to gain some fundamentals that can be applied to the issues related to Proton. A major portion of this section is based on Frappaolo's (2002) interpretation as it suits the purpose of this paper. It covers the types of knowledge, the meaning of knowledge management and the process of knowledge management.

2.1 Types of knowledge

It is claimed by many that all knowledge can be classified according to its complexity on a continuum from explicit to tacit (Davenport, 2000; Dixon, 2000; Myers, 1996). Polanyi (1966) identified the distinction between these two types of knowledge (see Figure 1 for graphic differentiation between explicit and tacit knowledge). Explicit knowledge is the knowledge that is articulated in formal language and easily transmitted among individuals both synchronously and asynchronously (Frappaolo, 2002). Tacit knowledge, on the other hand, is the personal knowledge embedded in individual experience and involving such intangible factors as personal belief, perspective, instinct and values.



Source: Fakhruzi, 2003

Figure 1 Typology of Explicit and Tacit Knowledge

Explicit knowledge is generally referred to as information. The challenge of explicit knowledge is one of handling the sheer volume of information available. On the other hand, while tacit knowledge potentially can represent great value to an organization, it is by nature far more difficult to capture and diffuse. The challenges represented by each type of knowledge at the very high level are the same – to build a bridge between seekers and providers of knowledge (ibid). Explicit knowledge can be adequately transferred with the help of electronic tools. On the other hand, the most efficient way to convey tacit knowledge throughout the organization is through face-to-face communication. Practices such as apprenticeships, mentoring and communities of practice have proven to be effective (Davenport, 2000).

For decades, organizations have focused their information technology investments on explicit knowledge rather than tacit knowledge for obvious reasons. The former is often conveyed as a standard part of most transaction-based information systems; it is much easier to convey and capture and generally humans mistrust anything that cannot be conveyed objectively and quantified (Dixon, 2000; Frappaolo, 2002).

2.2 The Meaning of Knowledge Management

Even with the general acceptance of the types of knowledge as categorized by Polanyi (1966), defining knowledge management is not a simple issue. There is no universally accepted definition of knowledge management. According to Frappaolo (2002),

“Knowledge management is not technology, although technology should be exploited as an enabler. It is not a directive, although strategic leadership is imperative to successful knowledge management. It is not a business strategy, although one aligned with the tenets of knowledge management must exist. It requires culture that promotes faith in collective sharing and thinking. But culture alone will not render a vital knowledge management practice. It is perhaps the lack of a singular definition that has

delayed the more wide-scale deployment of knowledge management.” (p.8)

In short, knowledge management can be said to be the leveraging of collective wisdom to increase responsiveness and innovation.

2.3 The Process of Knowledge Management

Researchers differ in their arguments as to what constitute the knowledge management process (Davenport, 2000; Dixon, 2000). An example is Lee and Yang (2000) (cited in Fakhruzi, 2003). **Figure 2** explains the process of knowledge management in organization. Lee and Yang (2000) stress the innovation process of knowledge management in order to match with product differentiation strategy. The acquisition, innovation, and protection process was considered as knowledge creation process, meanwhile integration and dissemination process can be considered as knowledge sharing in knowledge management process (ibid). To demonstrate the commitment towards the knowledge dissemination, the organization must encourage the workers to distribute and contribute to the knowledge and create the favorable reward system for those who are involved in sharing the knowledge. Besides that, individual commitment towards knowledge dissemination should also be recognized. This will motivate them to continuously disseminate their knowledge (ibid). In some circumstances, the organization’s workers are eager to share their knowledge, but the form of disseminated knowledge is not storable in database.



Source: Lee and Yang, 2000 (cited in Fakhruzi, 2003)

Figure 2: The process of knowledge management

But generally researchers agree that knowledge management comprises some form of knowledge acquisition, knowledge codification, knowledge dissemination and knowledge sharing (Davenport, 2000; Dixon, 2000).

2.4 Development of Knowledge Management Capability

Some authors (Ahanotu, 1998; Bouwen, 2001; Dove, 1999) view that apart from acknowledging the importance of understanding the knowledge management process, the next focus area should be the development of knowledge management capability of an organization (or organizations). According to Bouwen (2001),

‘...knowledge development, as well as knowledge sharing and integration, are essentially relational activities.’ (p.1).

Dove (1999) labeled an organization as ‘the agile enterprise’, that is an organization which is able to both manage and apply knowledge effectively and suggests that the value from either capability is impeded if they are not in balance. He looks at the application of knowledge as requiring a change and overviews a body of analytical work on change proficiency in business systems and processes. Chaharbaghi and Nugent (1996) added that apart from managing and applying knowledge effectively, by managing its processes ‘strategically’, an organization can maximize its knowledge development capabilities to the full in creating and exploiting business opportunities. Carneiro (2000), on the other hand, view that even though strategic considerations are important to organizations, in terms of developing the capability of organizations to manage knowledge, individual characteristics and personal development are equally important to consider. By considering how knowledge development is related with personal characteristics and personal development, he provides useful insights on the linkages between innovation and competitiveness. These considerations show the importance of knowledge development and the role of knowledge management in order to assure competitiveness. Bhatt (2000) looks at ‘knowledge development cycle’ and states that ‘knowledge development processes in organizations differ substantially as organizations uses a combination of strategies toward knowledge creation, knowledge adoption, knowledge distribution and knowledge review and revision processes’ (p.1).

2.5 Factors affecting Knowledge Management

There are many factors that researchers think affect the success of knowledge management in organizations. Some of the major factors are said to be mentoring, observation, on the job training and leadership (Jomo, 1994; Dixon, 2000). In mentoring, the mentor who is experienced in a particular field will work together with his or her mentees over a specified period of time. During that period, the knowledge involved will be transferred from the mentor to the mentee. In observation, the student manager will be given the opportunity to observe some organizational event and acquire the related knowledge. On the job training (OJT) is another means for managers or engineers to acquire specific knowledge while doing the work in their organizations. Those who are well versed with certain jobs will teach those who are not. Lastly is leadership. In joint ventures, there are occasions when experts from the one of the collaborating parties are seconded to become the chief executive officers (CEOs) or senior managers in the joint venture firms. While they are there, they provide the organizational knowledge through their leadership.

3.0 PROTON THE TORCH BEARER FOR THE MALAYSIAN AUTOMOTIVE INDUSTRY

Prior to the establishment of Proton, the automotive industry in Malaysia was consisted of various assembly operations of cars and vehicles imported from overseas. The joint venture, Proton (Perusahaan Otomobil Nasional), was incorporated on 7 May, 1983 with Hicom (the Malaysian government investment company) holding a majority share (70 per cent of the total investment of Malaysian Ringgit 150 million) to manufacture the Malayisan ‘national car’ (Jomo, 1994). The Japanese share of 30 per cent was shared equally between Mitsubishi Corporation and its subsidiary Mitsubishi Motor Corporation. Sometime in 1992, the company became a public listed company on the Kuala Lumpur Stock Exchange. Then in early 1996, a new development occurred which affected the ownership control in Proton. Yahaya, a Malay automotive entrepreneur from the private sector, bought over the government’s major share in Hicom (through his company – Diversified Resources Berhad [DRB]) and subsequently became the major shareholder of Proton. It was deemed by the government that Proton was ready to be led by a profit-driven leadership.

But Yahaya passed away in early 1997 in a helicopter accident. Not long after, his company’s shares in Hicom and Proton were sold back to the Malaysian government through Petronas, the latter’s cash rich oil company.

4.0 METHODOLOGY

4.1 Research Approach

This study uses the combination of historical approach and content analysis on data collected from a previous study. According to Schwandt (1997), content analysis is a generic name for a variety of means of textual analysis that involve comparing, contrasting and categorizing a corpus of data. The data may be cultural artifacts (texts of various kinds, documents, records, billboards, television shows, films, advertisements and so forth) or events.

4.2 The Analytical Framework

The historical analysis uses the following framework to track some of the events that had occurred in Proton:

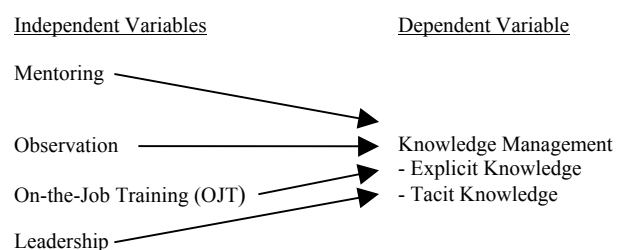


Figure 3 The Analytical Framework

4.3 Primary Data Sources and Field Interviews

Field data on Proton was collected primarily by semi-structured questionnaires and in-depth face-to-face interviews between the periods from 1994 to 1997 as part of a bigger study. The interviews were conducted with 20 senior managers in Proton (Table 1).

Table 1 Interviews with Proton's Senior Management

No.	Department	Interviewee's Rank
1.	CEO's Office	CEO
2.	CEO's Office	Manager
3.	Manufacturing	Deputy MD
4.	Manufacturing	Deputy GM
5.	Procurement/Vendor	GM
6.	Procurement/Vendor	Manager
7.	Corporate Planning	Deputy GM
8.	R&D	Deputy GM
9.	R&D	Deputy Manager
10.	R&D (Design)	Section Head
11.	Human Resource	Manager
12.	Human Resource	Manager, Training
13.	Quality Assurance	Senior Manager
14.	Quality Assurance	Manager 1
15.	Quality Assurance	Manager 2
16.	Quality Assurance	Head, SPA
17.	Casting	Manager
18.	Production 1	Manager
19.	Production Control	Manager
20.	Eon	CEO (Ex GM, F&A Proton)

5.0 FINDINGS AND DISCUSSION

From the interviews with the Proton managers (Table 1), the management of knowledge in the company can be divided into four categories – through leadership (two cases cited), mentoring, on-the-job training and observation (two cases cited), leadership and mentoring (one case) and on-the-job training and observation (one case).

5.1 The Joint Venture as the Knowledge Acquisition Strategy (Through Leadership)

Proton was a joint venture company between two parties with unequal balance of power – the Malaysian government (through Hicom) had no experience in the automotive business and car manufacturing while Mitsubishi had established track records in the business (Jayasankaran, 1993). He added that Mitsubishi was to construct the Proton plant (in Shah Alam), train Malaysian employees, provide equity shares, and introduces new design changes every two years with model changes every five years. In short, Mitsubishi had the technology and from day one, the Malaysians in Proton were to learn and acquire it.

5.2 The Knowledge to Manage a Car Company (Through Leadership)

As the majority shareholder of Proton was the Malaysian government, it was deemed necessary that the senior management positions should be held by Malaysians even though they had no knowledge of the automotive business. But the economic situation surrounding Proton's launch in 1985 was bad. In addition, there was a rise in the value of the Yen, the currency used to pay Mitsubishi for their engines and parts. Consequently, Proton suffered heavy losses between 1986 and 1988 (Table 2). As the Malaysian senior managers were lacking in experience and also knowledge about the business, they did not know what to do.

Table 2 Financial Performance of Proton (1986-1989) (Million Malaysian Ringgit)

	1986	1987	1988	1989
Turnover	172	227	440	821
Pretax Profit	-14.2	-63.8	-58.5	32

Source: Proton Annual Reports 1986-1989

Dr Mahathir, the Malaysian Prime Minister, had to interfere and requested Mitsubishi to take over the management of Proton temporarily from 1988 (Jomo, 1994). From 1989 onwards, Proton's performance recovered (under two Mitsubishi's CEOs – Iwabuchi and Hattori). Then in mid 1993, the Japanese groomed Nadzmi, a Malaysian to take over Proton's management. By the time Nadzmi became the CEO, the Malaysian engineers and managers in Proton had accumulated the experience and knowledge (both explicit and tacit).

In the past 15 years, Proton has been raising quality, lowering costs and making sure that its cars are price competitive (Anon, 2000).

5.3 The Knowledge to Make Cars (Through Mentoring, OJT and Observation)

Initially the Malaysian engineers in Proton did not know much about car manufacturing apart from their theoretical knowledge gained through their university education (Interview with Deputy MD Manufacturing, 1995). There were two groups of Malaysian engineers who joined Proton in 1983 – those from the government and those who just graduated. Both did not have any experience in automotive engineering. When the Proton plant in Shah Alam was under construction, these engineers were sent to Mitsubishi Motor's plants in Japan for several months to learn the Japanese language and also the fundamentals of car making (Interview with Proton's CEO). When the Proton plant was completed sometime in 1984, the Japanese mentors from Japan followed their students back to Shah Alam and worked

with them. In this way, the knowledge of car making was slowly transferred to the Malaysians.

5.4 The Knowledge of Managing Joint Ventures (Through Mentoring, OJT and Observation)

The Malaysian managers and engineers in Proton have learned a lot from their experiences in Proton, presumably both good and bad. Their achievements in running a successful car making joint venture had attracted the attention of other developing nations. For instance, in the mid 1990s the Vietnamese government had invited Proton to set up a joint venture to produce cars and commercial vehicles (Interview with Deputy GM, Corporate Planning). This reflects the confidence that other national leaders have in the capability of Proton managers. Apart from that when the recent Honda joint venture plant was set up in Malaysia, some senior managers from Proton were recruited for the purpose. This again indicates that the knowledge acquired by the Proton managers in joint venture management is highly regarded by competitors.

5.5 The Knowledge in Automotive Research and Development (R&D) (Through Leadership and Mentoring)

When Nadzmi took over the leadership of Proton, he came with a wealth of experience as a business person as he was the former CEO of Edaran Otomobil Nasional (Eon), the distributor of Proton cars. He wanted R&D to be the culture in Proton. A senior manager from Mitsubishi was stationed in Proton's R&D Division to assist in the development of the R&D activities (Interview with Nadzmi). Apart from that a Malaysian scientist (a PhD holder) was also recruited to help the Division to manage the knowledge required (Interview Deputy GM, R&D). But research on engine development was not yet part of the operation as it was not permitted under the contract agreement between Proton and Mitsubishi. Proton was required to use the Mitsubishi Lancer engine. In 1997, Yahaya took over the leadership of Proton from Nadzmi and pursued the R&D focus further. At that time, there was an opportunity whereby Lotus UK, a car company noted for its engineering technology, was up for sale. Yahaya grabbed the offer and bought Lotus which was earmarked to help Proton to develop a new engine. The engine was later used in the Waja model, the first Proton car which did not use the Japanese engine (Anon, 2000). The engine was jointly developed by the Malaysian engineers (who were trained by Mitsubishi) and the Lotus engineers (British).

5.6 The Knowledge of Automotive Export Business (Through OJT and Observation)

In terms of the domestic market, Proton had managed to control more than 60 per cent since 1987. But many critics cited its local success to tariff protection from the government. When AFTA rulings take effect in 2005, Proton is claimed to lose its significant domestic market share by half to cheaper imports. But over the years, Proton also has been gearing itself for the globalize markets. It started exporting the Proton cars in 1987 to five countries and the list of countries grew gradually to 50 countries in 1998 (Table 3).

Table 3 Proton's Export Performance (1993-1998)

	1993	1994	1995	1996	1997	1998
Sales ('000)	20.2	20.4	17	21	24.2	27.2
No. of countries	11	14	20	30	40	50

Source: Proton Annual Reports 1993-1998

6.0 CONCLUSIONS

The analysis in this paper was made based on hindsight. The concept of knowledge management was not yet known at the time when Proton was established and when it was developing in the 1980s and early 1990s. But based on historical documents, the idea of Proton (also called the 'National Car Project') was more than just a car manufacturer. It was earmarked to be an instrument to learn from the Japanese (also called technology transfer) and subsequently manage the acquired knowledge for the benefit of the country's industrialization program (Sharif, 2000). Even though when it was established, Proton was not conceptualized exactly according to any knowledge management model currently in use, what the company had picked up over time as discussed in this paper had given some indication that it had unconsciously practiced some form of knowledge management. However, this paper did not attempt to differentiate between explicit knowledge and tacit knowledge acquired.

Nevertheless it was found that the mechanisms which helped to enhance the development of knowledge management capability in Proton can be traced to such factors such as mentoring, observation, on the job training (OJT) and leadership. Over time, there may be other factors which come in. But these factors discussed in this paper are deemed to be the important ones during the period between mid 1980s and mid 1990s.

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