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New Direction on Integrating Knowledge Management in Malaysian Pharmaceutical Companies

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Abstract: The 21st century has brought about a number of disturbing challenges for organisations in the industry. In order to be sustainable and profitable in this modern and sophisticated era, organisations are required to do their business in more tenable ways to ensure corporate sustainability as well as preserving the natural environment for future generations. In achieving corporate sustainability and remaining competitively sustained in the industry in light of the current conflict between economic growth and conservation of environment, the management of knowledge has been increasingly recognised by organisations as a critical approach that can be harnessed to attain a competitive position and superior performance. Thus, this paper attempts to discuss on past literature on knowledge management strategy that can be implemented to improve the corporate sustainability performance in Malaysian halal pharmaceutical companies. Future study is to propose to conduct an empirical analysis to confirm the knowledge management strategy features to foster corporate sustainability performance.

Key words: Knowledge management strategy · Codification · Personalisation · Corporate sustainability performance

INTRODUCTION

Malaysia is targeting to achieve a sustainable developed nation with high standard living of the citizen by the year 2020 [1][2]. However, today's lifestyle and the quality of environment has led to a growing incidents of age-related ailments such as cancer, arthritis, Alzheimer's and life style disease including hypertension. Based on government statistics, in the year between 1996 to 2006, it was 43% increase in the number of Malaysian with hypertension and an 88% increases in the number of diabetic patient (10MP, 2000) and it not surprising if the statistic will increase year by year based on today's environment condition and lifestyle trends.

Greater awareness of health issues and the availability of more disposal income has led to an increase in the consumption of health and food supplements. In 2010, the health and food supplements sector in Malaysia was estimated to be worth RM2 billion [3]. This sector complements the pharmaceutical sector in improving the general health and well-being of Malaysians and also has significant economic impact on the country's balance of payments. The increases in life expectancy nowadays about better healthcare services and today's fast changing environment, undeniable, the roles played by Malaysian pharmaceutical company in achieving high standard of living citizen and sustainable developed nation are extremely crucial. Therefore, developing a sustainable, competitive and resilience pharmaceutical companies is a vital drivers to enhance government's aim in achieving balanced economic development and higher living standards at all level of stakeholders, especially future generation stakeholders.

At the same time, the 21st century has brought about a number of disturbing challenges for organisations in the industry. Organisations have to adapt to the new economic framework while considering the ethical and

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social aspects of business as well as the advent of globalisation [4][5], shortage of resources [6], also stakeholders' expectations and demands [7] to be able to sustain in the industry. Companies in this era, especially pharmaceutical ones, are facing fierce competition and need to continuously improve their ability to develop and maintain their competitive advantage [8]. Accordingly, companies nowadays are noticing the importance of managing knowledge if they want to remain competitive and grow [9]. Since knowledge is viewed as a key resource and strategic asset of sustained competitive advantage that contributes to improved corporate performance [10][11], it is thus fitting for Malaysian halal pharmaceutical companies to base their entire business on knowledge management for the survival of their market.

Pharmaceutical Companies in Malaysia: An Overview: The pharmaceutical industry is traditionally dominated by large firms that rely on their own chemical research. However, it is increasingly facing a new drug discovery reality which includes biology, nanotechnology and chemical sciences, where knowledge is more often developed outside of the walls of large pharmaceutical companies [12]. In order to manage these complexities, the industry needs to embrace the concept of knowledge management [13].

In Malaysia, the pharmaceutical industry comprises mainly small and medium-sized companies engaged in the production of drugs, traditional medicines and herbal supplements [14]. Malaysia has an effective pharmaceutical industry, which has contributed to the nation having one of the best World Health Organization (WHO) report cards in the region. Broadly speaking, the industry comprises two parallel streams: local companies that focus primarily on traditional medicine, vitamins, supplements, over-the-counter (OTC) drugs and generics; and multinationals, which have been responsible for bringing to Malaysia hundreds of internationally tested and accepted drugs whose safety, efficacy and quality have been proven and backed by strong research and development capabilities.

The pharmaceutical industry in Malaysia has primarily served the social role of ensuring safe, efficient and quality healthcare for the people. It has grown organically over the years to become one of the fastest expanding industries in the Malaysian economy. From 2006 to 2010, it delivered a stronger performance in terms of profit and growth than larger, more traditional economic sectors such as automotive, agriculture and electronics. Although not quite recession-proof, the local pharmaceutical sector performed much better than most of the other industries during the global meltdown in 2009, growing at 5.6% (compared to 10.7% in 2008).

In terms of sales of pharmaceutical products, the pharmacy sector registered an impressive double-digit growth rate of 13.3% in 2009, followed by the private hospital sector which grew 8.5% year on year and the clinic and government sectors which grew at less than 5%. In 2010, the Malaysian pharmaceutical industry was estimated to be worth RM5 billion for prescription and OTC medicines. According to industry analyst IMS Health in year 2010, the industry is expected to experience a compounded annual growth rate (CAGR) of 9.5% for the period 2009-2014, by the end of which it should be worth RM5.4 billion. Moreover, in 2011, the Malaysian pharmaceutical industry was estimated to be worth RM4.4 billion and is expected to continue growing at a rate of 10% per annum [14].

As part of the Malaysian government's Economic Transformation Programme, the Malaysian pharmaceutical industry was identified as one of the pillars of the healthcare sectors targeted to increase the nation's gross national income contribution by 22% and deliver a total of RM16.6 billion by 2020 [14]. As part of Malaysia's healthcare sector, the pharmaceutical industry is one of the 12 National Key Economic areas identified by the government that aims to further advance this sector by encouraging more private investments. The key attraction for this sector is the government's encouragement of halal biotechnology pharmaceuticals [15] as a result, the government has set a target in the Third Industrial Master Plan (IMP3) (2006-2020) for Malaysia to become a global halal hub.

Over 20% of the world's population are Muslim and currently account for a halal pharmaceutical market of more than US$650 billion (RM2.75 trillion). As an Islamic country with a sound base in the industry and a leader in the international halal food trade, Malaysia is well-positioned to make the most of growing global demand for halal-certified pharmaceutical products. The government is currently mulling the launch of manufacturing guidelines of halal medicines and it will undoubtedly collaborate with industry players in this endeavor.

Pharmaceutical Companies in Malaysia: The Challenges: At the same time, halal products including pharmaceutical products are fast gaining worldwide as a new benchmark for safety and quality assurance where

products with halal certification are confidently accepted by consumers especially for Muslims as well as those of other religions [15].

"Halal status" is one of the focal issues for pharmaceutical companies where several studies indicate that most of the pharmaceutical products supplied in Malaysia do not have halal certification [15]. Therefore, it is a challenge for Malaysian pharmaceutical companies to actively innovate eco-friendly halal pharmaceutical products. A study conducted by the Ministry of Science, Technology and Innovation showed that out of 15 samples of pharmaceutical products taken randomly, three were wrapped with gelatines which tested positive for pig DNA [16]. Gelatine is used in the industry of pharmaceuticals to make soft gel capsules, tablets and serums and are also used in injection [17].

According to Sakina [16], many manufacturers of health products do not apply for halal certificates from the Department of Islamic Development Malaysia (JAKIM), with only 20 supplement product manufacturers and 14 traditional medicine manufacturers obtaining such certificates. Dealing with halal status, this situation would place stakeholders at risk if items such as gelatin and alcohol were common ingredients in biopharmaceutical products. This is an urgent need to have a modern and efficient production process to supply halal gelatin and a generally allowed quantity of ethanol in final halal pharmaceutical products. This should serve as a rallying call for halal pharmaceutical companies in Malaysia to efficiently manage their knowledge to implement biological and environment-based innovation in order to produce alternatives to substitute the ingredients in pharmaceutical products for the benefit of future Muslim stakeholders.

There are many challenges for Malaysian companies to remain competitive in the global halal marketplace [18], one of the challenge is product differentiation that meet customers' need and expectation where the failure to respond to this challenge may erode Malaysian Halal companies as a global player [19] however, Malaysian halal manufacturers companies are weak in R and D activities. This is an urgent need to have modern and efficient production process to supply halal pharmaceutical products, therefore, no doubt that it is crucial for halal pharmaceutical companies in Malaysia to implement environmental based innovation by fully utilising their knowledge resources in order to produce eco ingredients in pharmeceutical products as subsitute for non halal ingredients for the benefit of future muslim's stakeholder and sustainable future.

Knowledge Management: The Essence of the Competitive Edge: Knowledge management (KM) has been considered as a critical strategy for firms to obtain a competitive advantage in recent years [20]. Today, the importance of managing knowledge has become crucial for corporations to remain competitive [21] and grow [9], so many of them are now beginning to actively manage their knowledge [22].

According to Barney [23], these organisations will be able to efficiently and effectively sustain their competitive advantage by strategically managing their resources, including knowledge. Therefore, Tseng [24] stated that the combination of various strategies in managing knowledge improves the companies' performance.

KM concerns the process of creation, sharing and use of knowledge within the firm. Makhija *et al.* [25] proposed that KM is about the collection of knowledge and connection of people. The foundation of KM is based on these processes: knowledge acquisition, knowledge conversion and knowledge application by the firm. Varieties of the KM framework have been proposed [26] and all are based on these three components. However, these processes are independent of each other. The success of the KM initiatives is dependent on the presence and interaction of all three components, as supported by Nonaka and Takeuchi's [27] remarks; KM requires a commitment to "create new (task-related) knowledge, disseminate it throughout the firm and embody it in products, services and systems".

Companies that exploit their own unique knowledge are believed to have the ability to learn faster than their competitors, thereby ensuring that they sustain their competitive advantage in the industry [28][29]. However, knowledge has to be managed because the mere act of processing knowledge does not guarantee a strategic advantage for the company [21]. Thus, only companies that are able to manage their knowledge with efficient and effective strategies will be successful at creating and retaining a competitive advantage.

Today, the importance of managing knowledge has become crucial for corporations to remain competitive [21] and grow [9], so many of them are now beginning to actively manage their knowledge [22]. As KM becomes increasingly recognised within organisations as a critical approach that can be harnessed to attain a competitive position and superior performance, managers have realised that KM draws from a wide spectrum of disciplines, including management information systems, computer science, behavioural science, organisational learning, research and training. During the late 1980s,

managers in several industries believed that advances in technology prepared them to manage knowledge effectively. Gloet [30] defined knowledge management as "those actions which support collaboration and integration", while Helfat [32] described KM as a process to enhance knowledge application to achieve innovation for improving business performance. Although the above definitions carry their own perspectives, there is likely to be a consensus that KM is a socio-technological system that supports collaboration and integration among interlocking organisational functions to create more innovative and value-added products and services for the market [26].

In remaining competitively sustained in the industry in light of the current conflict between economic growth and conservation of environment, the management of knowledge has been increasingly recognised by organisations as a critical approach that can be harnessed to attain a competitive position and superior performance [32]. Knowledge is believed to be the strategic source for a company to develop its sustainable competitive advantage [28]. Moreover, knowledge can be a source of advantage because it is unique, imperfectly mobile, imperfectly imitable and non-substitutable, making it the fundamental basis of competition [23].

Knowledge Management Strategy: The Strategy for Corporate Competitive Advantage: Today, knowledge management strategy is one of the best approaches to drive and fortify the competitive advantage of a company. However, Ho [7] noted that the adoption and implementation of the KM strategy in practice is not so straightforward due to many internal and external factors relating to the company. On the other hand, selecting the appropriate KM strategy is significant to its implementation [33]. Two different knowledge management strategies practised at management consulting firms have been identified by Hansen et al. [34], namely the codification strategy and the personalisation strategy.

The codification strategy is a "people-to-documents" approach that involves securing explicit knowledge in the form of databases for others to access and reuse [34]. Codification can be a good mechanism to store large amounts of organisational memory. This approach enables all authorised employees to retrieve the codified knowledge and share their expertise via electronic devices. Through this means, the codified knowledge is acquired, re-used, saved, refined and improved, which ultimately forms organisational innovation.

By contrast, the personalisation strategy is based on a "person-to-person" approach and delivers customised services often rendered by organisations that provide highly customised solutions to unique problems. This strategy focuses on discussions between individuals and not the knowledge objects in a database [7]. In brief, organisations that use the personalisation strategy emphasise "economies of expertise" and developing highly customised solutions to complex problems, thereby using person-to-person contact and personal interaction to solve problems [35] i.e. technical consultancy, research and development centres and creative and design centres.

Choe [36] forwarded the KM strategy as an integrated approach, combining both personalisation and codification strategies as a mixed KM strategy thus, it is suggested that a new and dynamic KM strategy which integrates the conceptual scope of the system and human-oriented KM concepts should be implemented. Therefore, under this combination, a balance between exploitation and exploration is achievable and well maintained [35]. It also ensures the effectiveness of the KM strategy and improves the performance of an enterprise [24]. Therefore, this study suggests that halal pharmaceutical companies need to fully utilise integrated a KM strategy that involves people-to-document and people-to-people approaches to innovate eco-friendly halal products since both strategies have their own strengths.

In Malaysia, the launching of the National IT Agenda as well as the establishment of the Multimedia Super Corridor in 1996 have shifted the Malaysian economy from a product-based to knowledge-based economy; this transition is part of Malaysia's wider plan to achieve fully developed country status by the year 2020. The concept of KM was first implemented in Malaysia in the late 1990s when multinational firms such as Microsoft and Hewlett-Packard brought their existing KM practices, processes and applications into the country. Multimedia Development Corporation (MDec), Siemens, Bank Negara Malaysia, Nokia Malaysia and Telekom Malaysia were among the pioneers in the implementation of KM in the country.

Knowledge Management Strategy and Malaysian Pharmaceutical Companies: KM has been identified by some researchers as one of the key factors ensuring firm success and providing benefits such as improved efficiency, improved competency and better decision-making among local firms [36]. Among the key

reasons identified for the importance of KM to Malaysian firms is the need for the latter to develop new areas of growth in this knowledge-intensive era [37]. Therefore, a study of the knowledge management practices of Malaysian halal pharmaceutical companies will be beneficial to the nation's pharmaceutical industry in terms of fostering sustainable growth and assisting Malaysia in achieving its vision to become a fully developed country.

Knowledge management is demonstrated by an emergent set of operational principles, processes, organisational design and structures, applications and technologies that lead knowledgeable employees of an organisation to leverage their creativity and ability to enhance business value [38]. Hence, it is extremely important for pharmaceutical companies in Malaysia to systematically implement knowledge management to boost knowledgeable workers to enhance their innovation, creativity and thus sustain their organisational performance [39].

Since knowledge is the most significant strategic source to obtain and expand, a firm can maintain its competitive advantage by allocating and employing knowledge [28]. Advanced knowledge employed by the organisation can also contribute to corporate performance and provide higher value to consumers [40]. Therefore, managing the source of knowledge is a crucial factor for pharmaceutical companies, especially those in Malaysia, in order to innovate sustainable pharmaceutical products and services and foster its corporate sustainability performance.

Nowadays, knowledge management strategy has become increasingly recognised by organisations as a critical approach since it can improve corporate performance and competitiveness [26]. Therefore, a study is need with the intends to bridge the gap highlighted by Cheng et al [41], namely that further research is needed in the area of knowledge management since the growing empirical research has not provided a better explanation for the performance implication of organisations with the implementation of the KM strategy. Furthermore, this area of study has scarcely been analysed in the existing literature [36] even though it is believed that knowledge management can be harnessed to attain a competitive position and superior performance [32]. Therefore, a study is needed to explore more about the strategy of knowledge management in pharmaceutical company.

Halal status is becoming a focal issue in Malaysian pharmaceutical companies, where the majority of pharmaceutical products sold are considered non-halal compliant (Halal Group Industries PLC, 2011). Furthermore, Harmy [17] stated that Muslims should find alternatives for halal sources, so manufacturers of pharmaceutical products must be aware of the material they use in their products to avoid any non-halal element [42]. However, Malaysian halal companies have been found to lack research and development activities and experts are needed in specific production processes in these companies [15]. In fostering research and development activities, developing knowledgeable expertise in Malaysian halal pharmaceutical companies and finding substitute materials for non-halal sources, this research will attempt to investigate the implementation of knowledge management strategy in local halal pharmaceutical companies.

It is crucial for companies to have the capacity to develop and implement the KM strategy, as it is central to achieving the goals of corporate performance [15]. Prior research has stated that knowledge management can improve a company's corporate performance and competitiveness [26]. Consequently, it is vital to measure knowledge management since corporate performance is boosted when the organisation's knowledge management is improved [43] and to prove the real impact of knowledge management on its performance [36]. Furthermore, measuring the contributions of knowledge management to organisational performance in the structural equation model is essential for further verification [43].

According to DeTienne et al. [22], the KM strategy is one of the best approaches to drive corporate performance and fortify a company's competitive advantage. It is believed that the company can foster its corporate performance by successfully creating competitive advantages through knowledge management strategy since knowledge is viewed as a key resource and strategic asset with sustained competitive advantage to improve corporate performance [10]. Moreover, Salojarvi, Furu and Sveiby [9] suggested that the organisation should notice the importance of managing knowledge if they want to remain competitive and grow.

The fierce competition faced within the pharmaceutical industry, which includes dealing with halal issues [15], enforces the need for pharmaceutical companies to continuously improve their ability to develop and maintain their competitive advantage [8]. Globalisation has challenged organisations to address current environmental pressures that could otherwise undermine their ability to competitively sustain themselves in the industry. In terms of sustainability and simultaneously meeting the needs of future stakeholders,

integrating resources and business strategies with society's expectations provide the companies with the opportunity to create a competitive advantage [19].

Therefore, achieving a steady corporate performance is a vital component of sustainability in the industry for halal pharmaceutical companies by implementing knowledge management strategy.

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