

## **Fostering Corporate Sustainability Performance through Integrated Knowledge Management Strategy and Eco-Innovation in Halal Pharmaceutical Companies: A Malaysia Case**

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**Abstract:** 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. Halal awareness in the pharmaceutical industry has been increase and gives prominent impact on Malaysia's economic growth. As research-intensive organisations, it is crucial for halal pharmaceutical companies in Malaysia to strategically manage their knowledge and foster innovation since sustainability requires them to rely heavily on the pursuit of sustainable research and development activities as well as innovation capabilities. This study seeks to give an insights of the implementation of integrated knowledge management strategy (codification and personalisation) and eco-innovation (Eco-process, eco-product, eco-organisational) among halal pharmaceutical companies in fostering corporate sustainability performance (economic, environmental and social).

**Key words:** Knowledge management strategy • Eco-innovation • Corporate sustainability performance • Halal pharmaceutical company

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### **INTRODUCTION**

It has long been a stated goal of the Malaysian government to establish Malaysia as a global *Halal* hub for the promotion, distribution and production of *Halal* products and services to the muslim countries all over the world. Underlining Malaysia's seriousness to strengthen its position as a leading halal industry centre, the government has set a target in the Third Industrial Master Plan (IMP3) (2006-2020) for Malaysia to become a global halal hub. Evident of the strong institutional support by the government to develop and promote halal industry in Malaysia, several federal agencies have been mobilised to undertake this task. For instance, in the 2013 Budget Speech, it was announced by the Government that the Islamic Development Bank will provide 200 million to the halal industry fund to further promote the halal industry (2013 Budget Speech).

In advent of halal issues, pharmaceutical industry in Malaysia is entrusted to be one of the halal compliant industries, as a strategic economic segment for Malaysia

whether in domestic usage or export agenda. Knowledge is believed to be the strategic source for the company to develop its sustainable competitive advantage; [1] however; according to [2] the most knowledgeable firms are not always sustainable since companies are forced to utilize business knowledge more effectively and this is not possible without systematic knowledge management.

### **Integrated Knowledge Management Strategy: The new direction of Knowledge management Strategy:**

Knowledge management (KM) strategy is seems as one of the best approaches to drive business performance and fortify the competitive advantage of the company [3]. According to [4] knowledge management is the explicit and systematic management of vital knowledge where strategic KM relates to the process and infrastructures firms employ to acquire, create and share knowledge for formulating strategy and making strategic decisions [5] Based on [6] KM strategy describes the overall approach of an organisation intends to take to align its knowledge resources and capabilities to the intellectual requirements



of its strategy thus will reduced the knowledge gap existing between what a company must know to perform its strategy and what it does know [6].

However, the KM strategy is often adopted in an unconscious way [4]. Firms must take a global and consistent vision when managing its knowledge and selecting KM tools to be implemented. The whole organisation must share a common KM orientation because KM is central to their ability to grow and compete [7]. Nevertheless, according to [8], the adoption and implementation of KM strategy in practice is not so straight forward due to many different internal and external factors to the company.

As been identified by Hansen [9] there are two different knowledge management strategies which are codification strategy and personalization strategy. Codification strategy is a "people-to-documents" approach that involves securing explicit knowledge in the form of databases for others to access and re use [9]. Codification can be a good mechanism to store large amounts of organizational memory [10]. This approach enables all authorized employees to retrieve the codified knowledge and share their expertise via electronic devices. Through this means, the codified knowledge is acquired, re-uses, saved, refined and improved which ultimately forms to be an organizational innovation.

The knowledge management strategies seemed to suggest two different focuses: the codification strategy mainly concentrates on the content management system while the personalisation strategy pays much attention to human interaction. The two strategies however shared a common goal; which is fostering creativity and innovation within organisations. If the organisations lean too much towards human factors, the new ideas may bubble up and evaporate due to lack of strategy and mechanism to harness them. Conversely, if the organisations emphasised too much on strategy and management system, the creativity might be restrained by the strategic directions or policies. As such, the balancing act is mandatory on both human factors and management system to attain successful organisational innovation.

Later, [11] combined two knowledge management strategies to facilitate the knowledge creating cycle within the enterprise. Pham & Hara ([11] stated that an open environment for integration of both strategies could be used for many purposes, such as problem-solving, decision making, social networking and knowledge exploring. This combination of strategies ensures the effectiveness of knowledge management strategy and improves the performance of an organisation [12]. With that, Percin [13] suggested another new knowledge

management strategy as dynamic knowledge management strategy which integrates the conceptual scope of the system and human-oriented knowledge management strategies.

Recently, Choe [14] suggested a new and dynamic knowledge management strategy which integrates the conceptual scope of the system and human-oriented knowledge management concepts. Choe [14] forwarded the knowledge management strategy as an integrated approach, combining both personalisation and codification strategies as a mixed knowledge management strategy. This personalisation strategy/human oriented style (or people-to-people) plays a leading role while the codification (or people-to-document) plays the supporting roles. The former strategy includes knowledge identification, knowledge creation and knowledge acquisition involving appropriate use of ICT enabling tools; while the codification strategy includes knowledge storage, knowledge organisation, knowledge distribution and knowledge application.

Under this combination, a balance between exploitation and exploration is achievable and well maintained [15]. It also ensures the effectiveness of the knowledge management strategy and improves the performance of an enterprise [12]. From the above literature review and discussion, it could be concluded that the integrated knowledge management strategy seems to be the most appropriate strategy to be implemented. Since both strategies have their strengths, this study suggests that halal pharmaceutical companies need to fully utilise integrated knowledge management strategy that involves people-to-document and people-to-people approaches to innovate eco-friendly halal products. Thus, in this context, it is proposed that the integrated knowledge management strategy is most appropriate for the Malaysian pharmaceutical companies that need both of the strategies. These approaches integrate both the codification and personalisation strategies and the implementation of eco-innovation as a platform to ensure the effectiveness of knowledge management strategy implementation as a well as improve the sustainability performance of Malaysian halal pharmaceutical companies.

The knowledge base of pharmaceutical companies is developed internally through research and development, or else acquired from external sources. Knowledge is sometimes sold to other companies, but most importantly, there is a critical need for continuous development of knowledge to develop new pharmaceutical products [16]. Furthermore, some characteristics such as a highly regulatory environment, long development cycles and a



high level of risks and costs in the R&D process are unique in the context of pharmaceutical companies that really needs of the management of knowledge strategically [17]. Hence, knowledge management may play a positive role within pharmaceutical companies, especially in ingredient and drug development [18].

Therefore, this study begins to clarify the potential of knowledge management as a basis for innovation and spread further light upon the use it into the implementation of eco-innovation especially in eco-product development within the Malaysian Halal pharmaceutical companies. In light of these benefits, this study discusses the implementation of integrated knowledge management strategy within the organisation and suggests strategies allow an increase in efficiency within the research and development (R&D) development processes in Malaysian Halal pharmaceutical companies.

**Bringing to the Edge of Eco-Innovation:** Kemp and Pearson [19] defines eco innovation as the production, application or exploitation of a good, service, production process, organizational structure, or management or business method that is novel to the firm or user and which results, throughout its life cycle, in a reduction of environmental risk, pollution and the negative impacts of resource use (including energy use) compared to relevant alternatives. Organizational innovations are important factor that triggering product and process innovations. According to OECD, organizational innovation is the implementation of a new organizational method in the firm's business practices, workplace organization or external relations. Based on relevant literatures [20], eco-innovation implementation can be initially understood as a coherent set of actions taken to carry out a specified eco-innovation project and these actions must fall under the organizational, process or products dimensions.

The first dimension of eco-innovation; eco-product innovation, is the introduction of new or significantly improved products such as improvement of material used in the product [21] Product innovation is the introduction of a good or service that is new or significantly improved as regards to its characteristics or intended uses. According to Pujari [21] the life cycle of a product involves all aspects of the product, from its creation to its disposal. Therefore, Carrillo-Hermosilla [22] stated that eco-product innovation is usually not only involves shortening product life cycles but also inspired by advances in eco-technologies and increasing competition among companies. Pujari [21] stated that the eco-process,

generally refers to the improvement of the existing production process or the addition of new processes to the existing process to reduce environmental impact in the organisation. [22] stated that eco-process innovations stand for new elements introduced into an organisation's production system for producing eco-products. Meanwhile, [22] suggested that process innovation can be additive solutions brought into the production process through substitution of input, optimisation of production and reclamation of output. Eco-organisational innovation refers to the upgrading of the organisation's management processes through new eco-methods in its practices [23]. Eco-organisation can subsequently improve corporate performance by supporting necessary changes, reducing handling and transaction cost, improving workplace and employee satisfaction and reducing the cost of suppliers. The definition of organisational innovation is the implementation of a new organisational method in the company's business practices and workplace organisation. It also includes external relations addressed at distributing responsibilities and decision-making among employees on the division of work within and between companies' activities (and organisational units). Organisational innovation also can be in the dimension of new strategies such as the integration or de-integration of different business activities

Innovation has long been associated with the pharmaceutical industry, the development of new medicines is paramount to the longevity of both the organisation and society [24], yet the complexity of these processes is largely under-researched and few studies exist which shed light upon how drug innovation occurs. This study aims to shed light upon these hidden processes and address where knowledge management can aid and enhance the innovative processes within an R&D-based organisation, particularly pharmaceutical company. This is because knowledge is regarded by many as the true driver of innovation and an organisation's competitive ability [25].

In pharmaceutical companies, the drug discovery processes may be viewed from a linear perspective, yet research by [26] suggests drug development functions as a network of interrelated processes and innovations. This study is primarily concerned with eco-innovation in pharmaceutical companies, yet the concept of pharmaceutical innovation is ill-defined [27]. The process of innovation stems from a variety of interconnected areas such as competitive advantage, risk management, technological management, collaborative activity,



creativity and knowledge management among other related fields [28]. Although innovation may be described as the formation of a tangible product, Cooper and Schindler [29] argued that innovation may also be construed as a strategic concept, where the option to improve the organisation and therefore induce a competitive advantage, arises through the use of innovative company practices.

Studies of innovative practice by [30] within the pharmaceutical industry suggest innovation as an important element for the sustainability of pharmaceutical companies. As suggested by [3], knowledge plays an important role as a strategic asset to maintain competitive advantage thus boost the ability of the company to implement innovation. Therefore, in the complex and multiple challenges faced by pharmaceutical companies [31], this study investigates the effect of knowledge management strategy implementation in pharmaceutical companies in Malaysia in fostering eco-innovation within their companies.

#### **Corporate Sustainability Performance: The Malaysian Halal Pharmaceutical company's Essence of Sustain:**

The term sustainability is being defined "as the ability to meet the needs of the present without comprising the ability of future generations meet their needs" [32]. From a corporate perspective, sustainability include three components which are economic, environmental and social issues [33]. Moreover, [33] referred this perspective as the triple bottom line (TBL). This means that at the company level need to explicitly consider the economic, environmental and social impacts (positive and negative) of their activities [34]. The relationships among economic, environment and social are essential to the concept and have to be balanced, therefore, the term triple bottom line is very common.

It is important for an organisation to have the capacity to develop and implement the KM strategy, as KM is central to achieving the goals of corporate sustainability performance [7]. KM programs can be successful when corporate sustainability performance is improved. Thus, it is vital to measure KM contribution to performance [12]. Besides, Lopez-Nicolas and Merono-Cerdan [35] also mentions in their study that the effect of KM strategy (codification and personalisation) on performance might be different. Past studies such as [36] and [37] stressed that the contribution of eco-innovation on organisation performance has been recognised. By developing eco-innovation activities whether these are economic, technological or non-technological

innovations, or are innovations of products, processes or organisational structures, an organisation may meet their sustainability goals [38]. Therefore, with significant potential benefits for innovative organisations, industry sectors and economies, eco-innovation play a key role in reaching global sustainability objectives.

Prior research state that KM strategy can improve corporate performance and competitiveness indirectly through higher organisational ability to be more creative [39] and innovative [40]. The description of innovative efforts which includes the search for and the discovery, experimentation and development of new technologies, new products and/or services, new production processes and new organizational structures is in line with the definition of eco-innovation [19]. Furthermore, Prior conceptual research state that KM can improve corporate performance and competitiveness. KM programs are successful when corporate performance is improved. Therefore, it is essential to measure KM contribution to performance [12] especially when there is at present no conclusive research on the relationship between KM strategy and firm performance [40].

The relationship between strategic management, eco-innovation and corporate sustainability performance thus supported by the study conducted by [39], [4] and [40], which they consider innovation as an intermediate factor between KM strategies (codification and personalisation) and corporate performance. Since corporate sustainability performance has become the most important dimension for achieving better organisational performance and prestige [41], it is crucial to conduct research on the measurement of corporate sustainability performance. Thus far, literature on sustainability initiatives has only focused on potentially polluting industries such as the chemical industry and the automobile industry [42]. Therefore, further research is needed to facilitate the integration of sustainability in business strategies to achieve corporate sustainability performance [43]. On the other hand, [38] noted that the association of corporate sustainability is still not properly understood, so more studies are necessary to reach more reliable and conclusive results pertaining corporate sustainability performance, particularly in emerging economies [41] such as Malaysia. Implementing innovation in organisations has been proven to enhance an organisation's performance in much of the existing literature since it helps the healthcare practitioners work better and smarter and is more cost effective [38].



## CONCLUSION

As the global pharmaceutical industry is currently confronted with massive costs due to a long research and development cycle, this study found that eco-innovation became an x-factor that intervenes the effect of knowledge management strategy on the sustainability of the company. Other than that, this study reveals that the multiple challenges faced by pharmaceutical companies such as medical error and incorrect doses which harm the sustainability of the company can be tackled by the mediating effect of eco-innovation towards corporate sustainability performance of Malaysian halal pharmaceutical companies. Other than that, the result of this current study confirms that pharmaceutical company as a research-intensive industry requires more frequent and intense innovation in tackling such obstacles especially in halal status of the product as well as potential patent expiration can be solved by the mediating effect of eco-innovation in the relationship of knowledge management strategy and corporate sustainability performance.

This study finds and explains KM strategy to improve eco-innovation and organisational performance. Further research could focus on corporate sustainability performance and investigate how organisations pursue corporate sustainability performance. This study also contributes by offering a better understanding of integrated knowledge management strategy, corporate sustainability performance and eco-innovation. It extended the current understanding of codification and personalisation knowledge management strategy and corporate sustainability performance in the dimension of social, economic and environment performance. Furthermore, this study provides an avenue for further understanding of eco-innovation in the perspectives of eco-product, eco-process and eco-organisational innovation literature.

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