The novel concepts and practices of firm innovativeness: the mediating and moderating impacts

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Abstract: The objective of this study is to propose a conceptual model that blends the dimensions of knowledge management, information technology capability, innovative culture and firm innovativeness into a single framework for practitioners and academicians. In conceptualising the model, this study reviewed a range of existing literature. The findings identified: 1) four processes of knowledge management that represent the construct; 2) information technology capability as a variable that mediates the relationship between knowledge management and firm innovativeness; 3) innovative culture as a variable that moderates the link between knowledge management and information technology capability. The resulting conceptualisation is meant for evaluating the potential strategic model for firms to implement information technology capability and innovative culture. It is posited that the proposed conceptual model, when implemented, would give practitioners a better understanding of factors that enhance firm innovativeness.
Keywords: knowledge management; innovative culture; firm innovativeness; information technology capability.


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1 Introduction

The contemporary world of business is highly competitive as a result of the dynamic nature of the marketplace. In facing challenging business competition, it is imperative for organisations to be innovative as this sets the firms apart from competitors. Wang and Wang (2012) elucidate that innovation is the primary source that enables firms to create superior value and attain competitive advantage (Subramaniam and Youndt, 2005) while Kim et al. (2015) suggest that admirable organisations practice innovativeness regularly in their response to adverse market environment. Baker et al. (2015) propose that the supreme task for firms is to innovate consistently while concurrently maintaining growth of sales. Furthermore, it is vital for organisations to continuously innovate to guarantee their survival in the market and to equip themselves with unique knowledge by converting knowledge into innovative resources to better their competitors (Cho and Korte, 2014).
Knowledge management (KM) is considered as achieving the objective and aspiration of the firm through the development and utilisation of knowledge resources within the firm (Davenport and Prusak, 1998). Firms are able to compete effectively through the utilisation of information technology (IT) which is one of the core organisational capabilities (Tallon, 2008). The employment of IT in firms leads to the creation of information technology capability (ITC). Firms that possess ITC are able to access valuable customers’ information, lower their costs, enhance the firms’ decision making and improve the firms’ skills in managing their daily operations (Chae et al., 2014). As such, ITC as a mediator plays an important role in enhancing organisations’ strengths (Yeh et al., 2014) owing its ability to organise and activate IT-related resources by merging and synchronising other organisations’ resources and capabilities (Bharadwaj, 2000). Turulja and Bajgorić (2016) elucidate that there is a shortage of research investigating the influence of ITC on firm innovativeness as most studies have focused on the impact of a specific technology to a specific innovation. Apart from ITC, culture plays a vital role in the utilisation of knowledge within the firm. This is because firms consist of employees who have the essential knowledge that enable organisations to learn and improve. Wei et al. (2013) elucidate that a firm that practises innovative culture (IC) appreciates the opportunities avail to them to develop new ideas or new products that would improve firm performance. IC highlights the magnitude of innovation, willingness to embrace innovations and quick decision making; that encompasses a set of principles and activities that could have an impact on the management of innovation (Toaldo et al., 2013). IC also strengthened the process by applying knowledge towards the capability and usage of IT among employees. Therefore, Michailova and Zhan (2015) posit that high IC may influence knowledge generation whereby knowledge conversion is the requirement for organisations to generate knowledge. Subsequently, in this study, IC is viewed as an enabler that enhances the relationship between KM and ITC.

This research has several objectives. Firstly, it was conducted to bridge the gap in knowledge as there is a dearth of studies that connect KM, ITC, IC and firm innovativeness in a single framework, as most studies have investigated these connections in isolation. Moreover, there is a need for the creation of a conceptual model that provides effective interpretation of the roles that KM, IC and ITC play in enhancing innovativeness in firms. Therefore, this paper endeavours to identify the processes of KM and whether ITC is recognised as an intermediary in the relationship between KM and firm innovativeness. This paper further proposes to examine if IC enhances the relationship between KM and ITC.

2 Literature review

Firm innovativeness is considered as an ‘imperfectly imitable resource’ that drives firms to attain competitive advantage and enhance performances. Mackelpang et al. (2015) accentuate that organisations that consider innovativeness as a strategic obligation would likely to channel more resources towards the creation of unique products and services. Furthermore, innovative organisations display the propensity to embrace new ideas and to leverage and develop new forte. Gölgeci and Ponomarov (2015) argue that firm innovativeness is regarded to be strategically significant as it enables businesses to flourish in dynamic market conditions.
2.1 Knowledge management

KM is described as a business concept that collaborates, harmonises and designs initiatives by administering firm’s knowledge in enhancing firm performance. KM is also viewed as a multidimensional process that consists of intertwined procedures encompassing various activities such as culture, processes and settings that are embodied within a comprehensive structure (Cho and Korte, 2014). By practising KM, firms have the ability to share knowledge, competencies and customs (Kör and Maden, 2013) and provides the necessary ability to make prompt decision by supplying their workforce the accurate information with the appropriate timing (Imran, 2014; Tseng, 2014). Firms that possess effective KM are able to implement best practices, synergise various departments within the firms and enhance operational processes throughout the organisation. Therefore, KM enables firms the capacity of generate the appropriate capability that can thrust them into obtaining competitive advantage (Alegre et al., 2013).

KM is predicted to impact firm innovation (Stanovcic et al., 2015) as it improves the firm’s ability in organising projects as well as enhancing the firm’s knowledge inventory (Gloet and Terziowski, 2004). Past researchers (Alavi and Leidner, 2001; Gold et al., 2001; Lee and Choi, 2003; Nonaka and Takeuchi, 1995) found that KM is categorised in various processes. Other researchers (Marshall et al., 1996; Parikh, 2001) suggest that KM consists of a process that requires the firm to develop and disseminate knowledge throughout the firm. In order for KM to be effective, there is need for the establishment of a systematic approach and hence, KM is categorised into four categories namely knowledge acquisition, knowledge conversion, knowledge application and knowledge protection (Gold et al., 2001).

2.2 Knowledge acquisition

For Åkerman (2015), knowledge acquisition epitomises the foundation of learning as it involves how knowledge is being acquired as well as attaining knowledge about the market. Knowledge can be acquired from external or internal source of the organisation (Fletcher and Harris, 2012; Freeman et al., 2010; Huber, 1991). Based on the internal perspective, it can be obtained from the firm’s reports, work processes and internal policy whereas the external perspective consists of information obtained through industry, customers or competitors’ data (Ajirapongpan et al., 2010; Zack, 1999). Knowledge acquisition is considered as a decisive process of KM because of its function in procuring new knowledge and holding it within the boundaries of the organisation (Akhan et al., 2016). It is related to the creation of vital information that would enhance existing knowledge and resulting in an effective assimilation of knowledge (Inkpen and Dikur, 1998). Furthermore, knowledge acquisition is believed to be able to influence firm performance as knowledge that is acquired from customers and business associates can be utilised by the firms in order to enhance the products and services quality (Del Mar Fuentes-Fuentes et al., 2015).

2.3 Knowledge conversion

Knowledge conversion is a process that enables individuals to be influenced by experience of another individual (Argote et al., 2000) and consists of processes that favour the utilisation of existing knowledge (Gold et al., 2001). These are based on the
The novel concepts and practices of firm innovativeness

spiral processes between both tacit and explicit knowledge (Gardies and Marcel, 2013). Sigala and Chalkiti (2015) reiterate this by elucidating that knowledge is formed through an interlocking weave of a variety of knowledge, through the phases of socialisation, externalisation, combination and internalisation (SECI) (Nonaka and Takeuchi, 1995). The SECI is regarded as an important process that enable firms to improve their knowledge capability as the conversion of knowledge from one element to another is very much dependable on how knowledge is being managed (Ray, 2014). Zahra (2015) reiterates this by proposing that organisations need capabilities to convert knowledge in order to disseminate and share the knowledge among employees.

2.4 Knowledge application

Knowledge application is regarded as an important behavioural attribute of KM that is referred to as the phase in which current knowledge is created to provide solution to problems (Alavi and Leidner, 2001). The application of knowledge is viewed as utilising knowledge that is obtained from sources such as employees and other departments within the firm and to apply it (Birasnav, 2014). Past highlight that knowledge application consists of contribution, retrieval, sharing, storage (Almeida, 1996), transfer and utilisation (Gold et al., 2001). By having efficient storage and retrieval system, this allows knowledge to be easily and quickly accessed. Knowledge application further infers that the assimilation of knowledge from various origins enables it to develop organisational capabilities through several means that are centred on regular or normal decision-making situations (Donate and de Pablo, 2015). Furthermore, effective knowledge application enables the firm to transform the firm’s intellectual capital into innovative products or services. This is because a holistic utilisation of knowledge provides the necessity for the firm to transform knowledge into products and to improve efficiency (Gold et al., 2001). Following Seeber et al. (2013), this research proposes that there is a need for firms to enhance the application of knowledge within the firm as it enables knowledge to be readily accessed and available for employees. This further allows the firm’s employees to apply the necessary knowledge while they are on their job.

2.5 Knowledge protection

Knowledge protection is devised with the intention to protect the firm’s data and information from unlawful or unauthorised used. It is viewed as an authority that protects knowledge from theft through mechanism such as trademark and copyrights (Jean et al., 2014). Bolisani et al. (2013) refer to knowledge protection as a set of devices, techniques or processes that are being utilised to preserve knowledge from being misused. A number of firms often turn to technology to provide knowledge protection by reinforcing access to knowledge through various mechanisms. For that, Estrada et al. (2015) reason that knowledge needs to be protected because safeguarding knowledge from unauthorised or unlawful use is imperative for the firm to achieve or maintain competitive advantage. This prevents imitation by rivals as precious and unique resources are secured from being duplicated (Barney, 1991). Moreover, mechanisms employed to protect knowledge allow firms to maintain knowledge in its original form and consequently prevent it from being altered or obsolete (Bloodgood and Salisbury, 2001).
3 KM and ITC

Past studies (Amit and Schoemaker, 1993; Raddats and Burton, 2014) suggest that firms have the capability to accrue, merge and utilise valuable resources and that firms can enhance their performance through the application of IT by lowering costs and enhancing revenues (Porter, 2001). Moreover, firms can further reduce costs by deploying IT in communicating with their partners as firms can reduce their operational costs (Zhang et al., 2013). As resource-based view (RBV) of the firm is the underpinning theory for framework of this study, Kawakami et al. (2015) argue that firms’ competitive advantage depends not only from the firms’ actual IT resources but also on its combination with other resources and capabilities. ITC is regarded to be in tandem with the RBV as it has the characteristics of valuable, rare, inimitable and non-substitutable that may enhance performance (Wade and Hulland, 2004) and enable the firm to obtain competitive advantage.

ITC is further considered as a key enabler that enhances the firm in improving its strength and competitiveness (Yeh et al., 2014). ITC is regarded as an information system that has the capability to process, store and disseminate information (Nakata and Zhu, 2006) and has the capability to manage and initiate IT resources by combining and harmonising with the firm’s other resources and capabilities (Bharadwaj, 2000). Previous study by Karagöz and Akgün (2015) concludes that ITC and knowledge are important components of performance and contribute greatly to the firm performance literature. Moreover, Mishra et al. (2013) elucidate that firms are encouraged to develop distinct IT resources so as to set them apart from rivals and enable the organisation to be competitive.

4 KM and IC

IC is a series of values and principles that inspires firms to promote innovation and an environment of inventiveness and receptive towards new ideas as well as responsive in decision making (Toaldo et al., 2013). It attempts to focus on obtaining competitive advantage as it encourages employees to embrace innovative ideas and processes that would enable the firm to generate unique ideas, procedures and products effectively (Hurley and Hult, 1998). This is supported by Tho and Trang (2015) who concur that an organisation’s IC allows its workers the trust that the organisation will back any new knowledge and concepts, thus providing the impetus for the workers to apply the new knowledge and expertise. Ultimately, this enhances the workers’ job performance (Tharenou and Harker, 1984; Waldman and Spangler, 1989).

The link between innovativeness and culture is featured widely in the literature. Past research such as Hurley and Hult (1998) found that culture-related innovativeness in firms emphasises the advancement of education and ‘participative decision making’. This is stressed by Yu et al. (2015) who suggest that participative decision making allows workers the freedom to explore and achieve innovation as well as encourage employees to develop and enhance their talents professionally. For firms to sustain IC, it is crucial to develop a base for innovation within the firms as this will be likely to promote and nurture the appropriate and suitable culture that will lead the firm to be innovative. By having this in place, IC magnifies the magnitude of empowering employees in motivating...
them to be innovative, to realise their capability and develop novel products and services (Ireland et al., 2006; Wei et al., 2013).

5 Resource-based view

The RBV of the firm stipulates that an organisation is able to achieve competitive advantage as a result of its resources that are valuable, rare, non-substitutable and inimitable (Barney, 1991; Wu and Chiu, 2015). Nason and Wiklund (2015) emphasise that valuable and unique resources enable organisations to generate profitable value (Peteraf, 1993; Rumelt, 1984). Resources include assets, characteristics, capabilities, talents and knowledge, and they provide the necessities for firms to contrive and implement strategies. Darroch (2005) posits that employees’ knowledge is considered as a resource as knowledge that is possessed by employees affects the firms. She suggests that knowledge would indirectly result in the quality or outcome of the products and services. This accentuates the fact that effective utilisation of KM would result in the firms being innovative and enable these firms to obtain superior performance.

Researches in RBV conclude that it is categorised into physical, organisational and human resources classifications (Barney, 1991; Pee and Kankanhalli, 2016). Physical category refers to the tangible source such as raw materials, IT, factories and machines. Organisational resources consist of organisational processes such as systems of managing, administration and governing; while human resources cover relationships with workers and proficiencies. Moreover, Bharadwaj (2000) argues that from the IT capability perspective, IT infrastructure and IT-related attributes such as culture and branding are regarded as vital resources for firms to obtain competitive advantage. The contribution of IT to firm performance is driven by resource-based perspective and it was found that IT-related strategies are aimed at improving the firm’s strategic standing (Rivard et al., 2006).

6 Discussion

Based on the discussion and the review of literature, it is concluded that gaps exist between the constructs of KM, ITC, and firm innovativeness. Firms that practise innovation are able to be dynamic in their market positioning (Story et al., 2014). Innovative firms also have the ability to venture into new markets (Kyrgidou and Spyropoulou, 2013) in order to compete with new creative products that enable them to obtain ‘differentiation advantage’ (Tellis et al., 2009). Innovativeness has been employed at product (Szymanski et al., 2007) and organisation level (Akgün et al., 2009) whereby it is believed that innovativeness occurs in firms when employees practise and uphold novel business ideas, inspired techniques, research and exceptional procedures in creating new products or services (Dibrell et al., 2015).

From the perspective of KM, the present study adopts four processes of KM that have been implemented by past studies (Lee et al., 2012; Lin and Lee, 2005; Pérez-López and Alegre, 2012). Knowledge is regarded as a requisite for firm innovativeness and the practices of acquiring knowledge, according to Bidmeshgipour et al. (2013), enable organisations to create new knowledge and combine existing knowledge (Yli-Renko
et al., 2001). This further equips the firm with a better understanding of knowledge in the creation and enhancement of products.

The significance of ITC in the relationship between KM and firm innovativeness is argued in the following section. Firstly, according to Buheji et al. (2015), KM inspires firm innovativeness as it encourages firms to work with their business affiliates in enhancing operational practices and procedures and provides firms with the skills to develop innovative products and services while improving organisations’ ability (Yahya and Goh, 2002). As knowledge itself could be insufficient for firms to be innovative, capabilities are required to assimilate these knowledge resources into valuable capabilities such as ITC. ITC is thought of as the capability to systematise and standardise the processes and operational procedures, able to handle and distribute immense amount of information, that enable firms to track job activities efficiently and allow employees easier access to communication (Kawakami et al., 2015). Yang (2014) further implies that the sharing and processing of information is widely acknowledged in KM literature and the presence of ITC enable firms to make informed decisions. ITC in organisation also indicates that organisations utilising IT to process knowledge create valuable capabilities that would enhance performances.

Secondly, the importance of ITC in the relationship between KM and firm innovativeness can be found in the acquisition process of KM, as both knowledge acquisition and knowledge competencies are regarded as the precursors in the formation of IT (Moodley, 2003). Knowledge that is obtained from customers, affiliates and suppliers may likely improve the firm’s technological competencies that would enhance new product development (Zhou et al., 2014) and encourage in the creating technological capability within the organisation. In this occasion, ITC provides the necessary capability for firms to fully utilise knowledge that would create value in the development of novel products. Firms with high level of ITC are likely to experience high degree of innovativeness. Moreover, ITC, according to Kmieciak et al. (2012), enhances communication, sharing of information and knowledge, permits interactions of knowledge and increases learning processes between partners, as these serve as the basic tenets of innovativeness.

Thirdly, the vital impact of ITC on the linkage between KM and firm innovativeness is that ITC is argued to shorten the development time of new products lower their developing costs and enhance design quality of new products. The reason for this is that ITC enables organisations to prioritise the development of products that has high chances of marketability by forecasting customers’ preferences so as to succeed in the launch of new inventions (Datta, 2011). This innovative method of obtaining feedback from customers and other techniques that are deemed as original, such as purchasing through various channel, customer consultation and after-sales services are pivotal in elevating firm innovativeness (Chen and Tsou, 2012).

IC as a moderating variable signifies the orientation of a firm to explore new ideas by investigating new resource that varies from the traditional approach (Ireland et al., 2006; Wei et al., 2013). In a firm with IC, employees will feel that the firm is buzzing with enthusiasm and hence, they will be motivated in conducting research, applying new proficiency and experimenting with new procedures and techniques in developing novel products (Zhou et al., 2005).

Additionally, the significance of IC is highlighted in a study by Halim et al. (2015), who argue that within the context of Malaysian SMEs, competitive advantage can be enhanced with the introduction of IC that would reinforce firms innovativeness.
The novel concepts and practices of firm innovativeness (Al Amin, 2013). In current business environment, this is even more pronounced as globalisation and tough competition are prevalent. As such, knowledge is very much more important for employees to efficiently perform their tasks.

Lastly, as a moderator in linking the relationship between KM and ITC, IC provides a conducive environment for organisations to implement and execute the appropriate capability that would convert knowledge resources into competitive advantage in organisations.

7 Conclusions

To conclude, it is imperative that firms apply the right knowledge and manage the knowledge effectively. This provides the firms with a pathway towards innovativeness. By having the appropriate capabilities within the firm, such as ITC, and, coupled with the appropriate environment that promotes innovativeness such as IC, would enhance the practices of firm innovativeness within the organisations.

This study offers the initial findings based on a synthesis of assessment of studies on KM, IT capabilities, IC and firm innovativeness. This paper recognises the gap in literature by incorporating these constructs and describes the emergence of IC and ITC as drivers of innovativeness in firms. The impacts of both constructs on innovative practices in firms were also discussed. This study suggests that for future directions, it is imperative to identify the impacts of these drivers on the outcome of firm innovativeness such as firm performance, as this will provide holistic and comprehensive assessments.

The implications of this research are two-fold. It offers researchers and practitioners a synopsis of how the concept of firm innovativeness has progressed over time. This study further presents the catalysts that enable firms to be more innovative in current business environment and the strategies that firms could employ to stay ahead of their competitors.

References


The novel concepts and practices of firm innovativeness


The novel concepts and practices of firm innovativeness


