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Knowledge as a Source of Innovation for Entrepreneurial Firms

Siti Aisah Janaji[1], Kamariah Ismail[2], Fahmi Ibrahim[3]

[1,2,3]Universiti Teknologi Brunei

ABSTRACT: Knowledge is perceived as critical sources to non-technological and technological entrepreneurial firms in commercializing products and services. Knowledge-based view highlights that the diverse knowledge bases within firms reflect the firms' performance. Gradually, the access to external and internal sources of knowledge can be transformed into stocks of knowledge thus, is embedded in such as organizational routines. Albeit the fact that entrepreneurial firms may have lack of financial capital, the exploration and exploitation of new and existing knowledge will enable firms to create value, and subsequently obtain competitive advantage as they grow. This paper will review how entrepreneurial firms can utilize knowledge for innovation.

KEYWORDS: Innovation, Products, Services, Knowledge-based View, and Competitive Advantage,

I. INTRODUCTION

This paper briefly covers on to what extent entrepreneurial firms can create and accumulate knowledge from both internal and external sources. Knowledge has a linkage with firm performance (Hameed et al., 2020, Sa et al., 2020, Zhou et al., 2021). Upadhyay & Kumar (2020) cite that firm performance is measured by two dimensions: market performance and financial performance (Mithas et al., 2011). The firm performance measurement is important as it is part of an organisation's innovation performance which decides the life of the organization (Covin & Slevin, 1990; Laursen & Salter, 2006). Furthermore, firm innovation is also measured by the number of patent applications (Ko & Choi, 2019). However, the entrepreneurial capability of protecting and claiming IP is less likely to be reproduced in less adequate environment (Thomas et al., 2020).

Amankwah-Amoah and Adomako (2021) cite that the integration of knowledge into organizational decision making and process maps the way in increasing firms' chance of achieving the high-quality solution thus, enhances innovation performance. It was also reported by Sung and Choi (2018) that knowledge represents a firm's ability to innovate and adapt to changing circumstances. Furthermore, the innovation literature states that firms' ability to acquire and integrate knowledge into the firms' processes differentiates the superior performance between leading and lagging firms (Grant, 2015; Scuotto et al., 2017). In general, innovation refers to the introduction of new approaches in bringing new products or services to market (Singh et al., 2020). Hence, collaboration, utilization, and mobilization of cutting-edge market knowledge are entrepreneurial firms' new approaches to innovation (Chesbrough & Appleyard, 2007; Scuotto et al., 2017).

II. KNOWLEDGE-BASED VIEW

The KBV is an extension of resource-based view (Grant, 2004) in which according to Grant and Baden-Fuller (2004) the knowledge-based literature identified two conceptually similar dimensions of knowledge management of which the rise organizations' stock of knowledge that March (1991) refers as exploration, and Spender (1992) refers as knowledge application. KBV posits that the capacity to create, transform, and apply knowledge is the main source of innovations in responding to changes of the environment (Hanssen-Bauer & Snow, 1996). Moreover, KBV argues that a business' competitiveness can be tracked on the knowledge it possesses, leverages and utilizes (Grant, 1996). To some extent, the knowledge-based framework is an important determinant of a firm's capacity in generating substantial competitive advantage (Martin & Javalgi, 2019). Supporting this argument, Nagano (2019) asserts that knowledge is a strategic resource and the fundamental basis for generating competitive advantage.

There is a connection between the firm's ability to be entrepreneurial and knowledge-based resources (Kedmence & Strašek, 2017). Moreover, the KBV states that a firm can gain competitive advantage through the application of knowledge resources

through its network (Flor, 2006) as KBV constitutes of employees' know-how, capacity to learn, and utilize knowledge for a successful innovation process. Thereby, KBV proposes linkages among market information knowledge, human capital knowledge, and customer relational knowledge (Grant, 1996; Martin & Javalgi, 2019). Meanwhile, Martin and Javalgi (2019) consider firms' capabilities as the outcomes of the unique processes by which firms combine knowledge and resources they possess to create value for their customers.

III. DISCUSSION

A. Knowledge Creation Within an Organization

The classic work of Nonaka and Takeuchi's SECI Model (1995) is still pertinent in understanding knowledge general processes in organizations. The SECI Model (Nonaka & Takeuchi, 1995) has been getting attention in numerous disciplines such as management engineering (Feng & Yu, 2018), commerce (Chaanouni & Yahira, 2014), education (Brundrett & Lungka, 2018), management (Chatterjee et al., 2018), and marketing (Alonso & Alexander, 2017). Nonaka and Takeuchi (1995) developed a knowledge creation model based on their findings between Western and Japanese culture on knowledge creation. Based on their study, tacit knowledge is the primary knowledge received. Additionally, the transfer and conversion of tacit knowledge to explicit knowledge is within four knowledge conversion activities namely socialization, externalization, combination, and internalization (SECI). The model indicates that new knowledge is extended and is made accessible to groups and people in an organization (Nonaka & Takeuchi, 1995). The spiral in their model illustrates that the learning process is always an ongoing process.

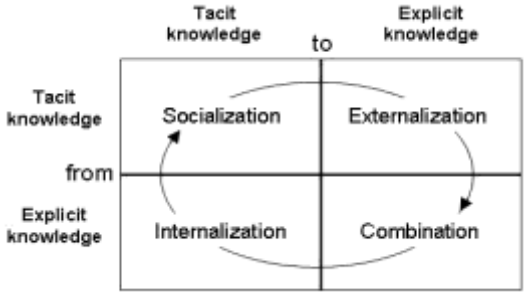

Figure 1. Modes of Knowledge Creation (Nanoka & Takeuchi, 1995).

From figure 1 above, the socialization process in the SECI model (tacit to tacit) involves interpersonal dialogue and discussion which can be formal and informal. For example, a new product development first starts with brainstorming and face-to-face meetings. Next, the externalization process stimulates stakeholders in the organization to be interested in the ideas thusly formulate the product and marketing concepts. While internalization process takes place when concepts go through screenings before efforts are placed in production. Lastly, internationalization process occurs when the knowledge is formalized into standard operating procedures.

B. Knowledge Sourcing from Externals

Organizations often go through a period of trial and error to gain external knowledge as extensive effort and time are necessary in establishing the understanding of habits, norms, and routines of different external knowledge channels (Laursen & Salter, 2006). It can be suggested that knowledge sourcing involves seeking of information from suppliers, government agencies, universities, and research agencies. von Hippel (2006) asserts that diverse knowledge is found to stimulate the creation of new ideas. However, individuals in the firms must be motivated and committed to learning, articulating, and sharing the knowledge they possess as well as willing to apply for the creation of new products and processes (Díaz-Díaz & de Saá-Pérez, 2014).

Caloghirou et al., (2021) cite that firms' capabilities in assessing and exploiting information and knowledge outside the firms' boundaries have a central role to play in their innovative performance (Antonelli & Fassio, 2016). This mirrors the work of Cohen and Levinthal (1990) which illustrates that knowledge accumulation enhances the ability of firms to recognize and assimilate new ideas, and the ability to convert the knowledge into further innovations. On the other hand, research institutions and universities are broadly recognized as important external partners that provide firms with flows of technology- and science-driven knowledge that foster innovation (González-Pernía et al., 2015).

Caloghirou et al. (2021) cite that there have been studies focusing on interaction effects of internal and external knowledge sources on firms' innovation success (Berchicci, 2013; Laursen & Salter, 2006) however, the potential offsetting or synergistic effects of knowledge stocks and knowledge flows on innovation have been barely explored. Roper and Hewitt-Dundas (2015) highlight that the interactions between knowledge stocks are dependent on patents and/or human capital, and knowledge

circulates due to collaborations and/or inter-firm collaboration with public organizations. Based on a recent study by Goyal et al., (2020) from a total sample size of 655 organizations in financial and information technology, about 65 per cent highlights that organizations with higher degree of knowledge creations are more likely to innovate through new patents. The technology infusion and intensity of knowledge have been associated with networks of patenting inventors and technological trajectories (Breschi et al., 2005; Hall et al., 2005). This can be due the fact that the patent system has roles in promoting innovation; to promote research and investment and commercialization, and to protect inventions from imitation for a certain period (Okada & Nagaoka, 2020).

Ko et al. (2021) cite that some firms commonly seek external information for novel uses, while other firms limit the search for efficient utilization (Zahra & George, 2002). These distinctions suggest that a firm's learning orientation regarding exploration vs. exploitation may affect how firms conduct external searches (Gambeta et al., 2019). Thus, the ability to simultaneously pursue both exploration and exploitation has been called organizational ambidexterity (Laureiro-Martínez et al., 2015, O'Reilly & Tushman, 2008). According to Raffaelli et al. (2019) managerial cognition factor which can impact firm ambidexterity has been less studied. Meanwhile, a recent research by Ko et al. (2021) studies how firm strategic intent as a form of dominant logic (Matysiak et al., 2018; Prahalad, 2004) affects the relationship between external search and firm innovation. The dominant logic represents the shared propositions and beliefs that managers have developed over time which dominates an organization's actions (Matysiak et al., 2018), allows managers to categorize and assess its consequences thus consider appropriate actions (Bettis & Prahalad, 1995). Thus forth, the dominant logic tends to influence a firm's dynamic capabilities (Teece et al., 1997) particularly the managerial capabilities to build, integrate and reconfigure resources and competencies on addressing new product markets (Adner & Helfat, 2003). This mirrors the types of motivation for external sourcing namely seeking variance and improving efficiency (West & Bogers, 2014).

As there can be abundance of external knowledge, this could affect managerial decision-making on what, which and how knowledge can be selected and utilized. To some extent, "Where to search" and "How to search" can have a complementary and different impact on innovation (Lopez-Vega et al., 2016). Thus, strategic intent of a firm imprints manager to scan environments selectively and filter information (Bettis & Prahalad, 1995). According to Ko et al., (2021) exploration vs. exploitation as the types of strategic intent may influence external searches differently due to the structural differentiation in the interpretation, application of information, and selection of the learning activities. Thereby, the exploratory search (e.g., market information) enhances the knowledge pool by expanding distinctive dissimilarities, creating new ideas by introducing new elements to existing knowledge, and increases the chances of discovering a useful combination (Katila & Ahuja, 2002). Meanwhile, exploitative search (e.g., user knowledge) is when firms make use of newly discovered knowledge by offering insights in coordinating firms' existing and evolving capabilities as well as knowledge thus effectively transforming the acquired knowledge into a realized opportunity (Leal-Rodrigueet al., 2014).

IV. CONCLUSION

From discussion above, it can be drawn that continuous innovation requires the collection of diverse of knowledge from universities, research institutions, experts in industry, lead users, and customers. This entails that the knowledge creation as well as organizational learning cycles cannot be initiated in silos. For instance, early ideas of product innovation tend to be fragile thus it requires carriers of idea and certain processes to transform into realized opportunities.

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