

Chapter 15

The Role of Internet of Things, Knowledge Management, and Open Innovation in SME Sustainability

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ABSTRACT

The main objective of the chapter is to discuss the relationship between internet of things and knowledge management; knowledge management and open innovation; open innovation and SMEs sustainability. The relationship between the constructs developed and discuss on the behalf of past studies. The present chapter found that Internet of Things is playing an important role in knowledge generation and management, further, knowledge management is very important for open innovation environment in SMEs. Moreover, the open innovation sustains the SMEs performance. In respect of implications, the owner / managers of SMEs should consider the Internet of Things, knowledge management, and open innovation capabilities during the decision making for SME sustainability. Moreover, this is a process framework which brings the effect of one variable to other variables. However, the future studies should empirically validate the proposed research framework.

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INTRODUCTION

In this digital world, firms are adopting and adapting the latest technologies to speed up the business process to achieve the higher efficiency in the business as well as enhance the innovation within in the firms through external and internal knowledge and information gathering (Frishammar, Richtnér, Brattström, Magnusson, & Björk, 2019). In other words, it is called knowledge and technology driven economy. Basically, large number of scholarly researchers reported the issue regarding management of knowledge, which is crucial for company's better performance. Essentially, the knowledge management is very important to organize and leverage the collective knowledge of firms which can improve the innovativeness in the firms and achieve the sustainable performance of the firms (Garcia-Morales, Martín-Rojas, & Lardón-López, 2018). However, the knowledge management is supporting to open innovation environment in the firms as well. Furthermore, proper knowledge management responds to dynamic environment changes.

Amazingly, a few researchers have been conducted the researches on the role of information & communication technology (ICT) in management of knowledge. However, this is significant research gap, because there are many firms working on knowledge management, in order to create, share and store the information. As discuss previously, knowledge management is important for firm efficiency which leads to higher firm performance as well as improve the open innovation within the firm (Papa, Dezi, Gregori, Mueller, & Miglietta, 2018). More importantly, considering the internet of things (IoT) occurrence, this is a global network in which millions of devices are interconnected to exchange the data and interact to spread their utility beyond the physical world (Miraz, Ali, Excell, & Picking, 2018). Basically, firms can get the competitive advantage in order to gathering and exchange of data through IoT capability. Furthermore, itself IoT capability is changing the nature of innovation.

According to Santoro, Vrontis, Thrassou, and Dezi (2018) suggested that firms can developed the IoT which can facilitate or sustain to knowledge management system through exploration of advance external knowledge, which converted into higher innovation performance. The innovation performance explains in this chapter as introduction of new product/service, process and opening a new market (Expósito, Fernández-Serrano, & Liñán, 2019). Mainly, as past researchers identified that knowledge management is exploring the internal & external knowledge and retaining the knowledge to adopting the open innovation (Lifshitz-Assaf, 2018). Furthermore, past researches presented that different practices related with open innovation, such as looking for opportunity to using external knowledge for innovation process within the firm beyond the firm boundary is not new for firms. Consequently, the main concern of the firms to build the network through they can collaborate and outsource the knowledge which can help to manage the innovation strategies (Tidd & Bessant, 2018). This open innovation behavior is very important small and medium enterprises (SMEs), since SMEs are lying on external information and research collaboration in order to attain the competitive advantage, which leads to sustain their performance (de Zubielqui, Lindsay, Lindsay, & Jones, 2019).

Moreover, the only few studies have investigated the role of open innovation in context of SMEs sustainability. Additionally, the past researches have main focused on the differences between open innovation in SMEs and large firms. However, this research gap is motivating the current research for further investigation. Therefore, this chapter is going to explore the role of IoT in knowledge management and open innovation domain. Hence, this research work aims to contribute into knowledge management and open innovation literature to highlight how IoT can facilitate to knowledge management and further

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