Small but Smart: How SMEs can Boost Performance Through AI and Innovation

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Abstract. This article aims to explore the relationship between knowledge management, artificial intelligence, innovation, and Small and Medium Enterprises (SMEs) performance. Using a literature review approach, 40 articles were selected from reputable databases and analyzed using VOSviewer software. The results showed that knowledge management is crucial for improving SMEs' performance. Artificial intelligence and innovation play a significant role as mediators in enhancing the relationship between knowledge management and SMEs' performance. The study also suggests that artificial intelligence is not only beneficial for large companies but also applicable to SMEs. The findings have important implications for SMEs to adopt knowledge management, artificial intelligence, and innovation to enhance their performance.

Keywords: knowledge management · artifcial intelligence · innovation · SMEs Performance

1 Introduction

The issue of SMEs performance has been widely discussed in academic research since the past. The performance of SMEs has always been a concern because it is one of the pillars of people's lives in Indonesia. SMEs play an important role in improving living standards, forging innovation, new ideas, training places for entrepreneurs [1]. Many variables affect the performance of these SMEs so that SMEs can achieve competitive advantage. This research is based on the Knowledge Base View Theory which argues that to achieve competitive advantage, organizations need to adopt strategies and utilize knowledge. Thus, it will be appropriate in making decisions and creating technology-based innovative processes [2].

Knowledge management is a management discipline that has made remarkable progress and attracted the attention of researchers, practitioners and policy makers. Knowledge management is widely recognized as a practitioner-driven concept and subsumed into academic research [3]. The first knowledge management conference, which attracted the attention of many participants, was unexpectedly held in Boston in

1993 [4]. The collaborative practice of human resource management drives knowledge management [5].

The Experts have noted that knowledge management is able to stimulate competitive advantage not only for large companies, but also for SMEs [6]. Besides knowledge management, another variable that is of concern to improve performance is artificial intelligence. The development of artificial intelligence can increase economic growth [7]. In recent years artificial intelligence has received a great deal of attention within the scientific community and the general public. Artificial intelligence turns out to have a positive impact on the economy [8].

Nowdays, small organizations can also leverage artificial intelligence to enhance their production and operations activities in order to compete and thrive in the present [9, 10]. Artificial intelligence is not only applied to large companies but also to small and medium businesses. Artificial intelligence can be practiced for the development of strategic management intelligence [11]. Companies can use one or more creativity and innovation techniques to achieve the desired creative potential during new product development [12]. On the other hand, there is also concern about the negative impact of artificial intelligence on society, a phenomenon that is also a scientific focus [13]. Then, very few studies have succeeded in measuring the increase in the speed of innovation in the field of artificial intelligence [14].

Knowledge management as a process of creating, acquiring, capturing, sharing, and using knowledge to enhance organizational learning and performance [15]. Two fundamental approaches regarding knowledge, namely tacit knowledge and explicit knowledge [16]. Knowledge management is used to improve performance, create innovative ideas [17]. The knowledge management model can be seen from knowledge creation, knowledge communication, and knowledge review [18]. Basic knowledge is used as knowledge management and artificial intelligence to achieve success in the field of e-business [19]. Artificial intelligence provides a mechanism to enable machines to acquire knowledge base learning provided by knowledge management [17].

Knowledge management capabilities are a valuable source of innovation [20]. The flow of information can be managed on social media by empowering knowledge management, which can be linked to innovation [21]. Innovation is the key for entrepreneurs to achieve competitive advantage. Abundance of knowledge is positively correlated with innovation performance [22]. Knowledge management practices contribute to company innovation, both directly and indirectly [23]. Knowledge management strengthens the effect on innovation performance in the context of MSME performance [24]. Sharing organizational knowledge and innovation appears to be the main driver for gaining competitive advantage [25].

A manager needs to pay special attention to knowledge because it can recognize various types of innovation [5]. Knowledge management is external knowledge that can stimulate business innovation [20]. On the other hand, the transfer of knowledge in R & D and social networks has a more influential effect on the innovation performance of informal sector SMEs [26]. There are four intellectual structures of knowledge management namely knowledge management practices, management of small and medium enterprises (SMEs) based on knowledge, innovation and performance perspectives, and activated knowledge management [27].

The last few years have seen an increase in the application of artificial intelligence which is considered to have a major impact on the whole society [28]. Artificial intelligence is widely used in business and public management [29]. Companies are also encouraging public discourse about artificial intelligence to find customers for their products [30–32].

Artificial Intelligence has the potential to replace human decision-making in innovation management [33]. Artificial Intelligence brings data and algorithms to the heart of the innovation process. Artificial intelligence enables the creation of solutions that are more user-centric than human-based approaches [34]. Innovation in artificial intelligence is happening at a faster pace than ever before. On the other hand, only a few studies have succeeded in measuring or describing the increase in the speed of innovation in the field of artificial intelligence [14]. Artificial intelligence will be able to perform intuitive tasks in innovative ways that integrate humans and machines. This can threaten human employment [35].

The results of the study show that artificial intelligence has a significant positive effect on employee performance and is an important determinant in organizations [35]. The quality of innovation mediates the relationship between customer knowledge management and firm performance. Furthermore, the results support the moderating effect of the relationship between customer knowledge management and innovation quality [36]. Top management knowledge and knowledge creation practices affect innovation which ultimately affects organizational performance [37]. Most of the articles show a positive relationship between knowledge management and firm performance. If knowledge management is well implemented in a company, there must be top company performance [38].

Knowledge sharing is the best performance factor for service innovation [39] and knowledge-based systems using artificial intelligence can support knowledge management [12]. Innovation theory suggests to practitioners that companies adapt to technological changes through the application of knowledge management [40]. This article offers a conceptual model that explains the relationship between performance, knowledge management, artificial intelligence, and innovation in small and medium enterprises. Based on the literature study that has been described, a conceptual model can be presented as follows (Fig. 1).
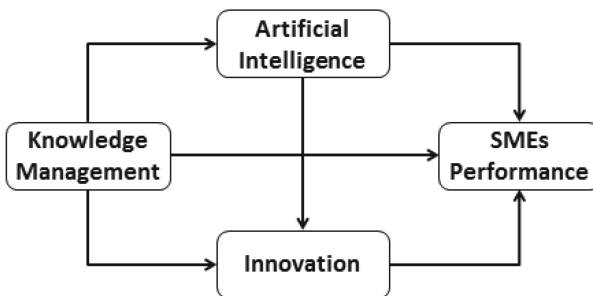
Fig. 1. Conceptual Model of Knowledge Management, Artificial Intelligence, Innovation and SMEs Performance

Prepositions that can be presented based on literature studies are,

Preposition 1. Knowledge management influences SMEs performance mediated by artificial intelligence.

Preposition 2. Knowledge management influences SMEs performance mediated by innovation.

Preposition 3. Knowledge management influences SMEs performance mediated by artificial intelligence and innovation.

2 Methodology

This study proposes the linkages of knowledge management, artificial intelligence, innovation and performance in SMEs based on empirical studies of existing literature. This is done to identify the relationship between independent variables, dependent variables and mediation. Literature search is recommended to find studies that are relevant to the issue of this study. Literature documents consist of journal articles and proceedings published in various international reputable journals taken from Google Scholar, Scopus and Wos databases from 2018 to 2022. To support the literature review, several past years' articles are also cited.

This study uses an exploratory approach to develop prepositions on research that has not been studied in any context. The dependent variable on this variable is knowledge management and the independent variable is the performance of SMEs. The mediating variables of this research are artificial intelligence and innovation. Starting with using the keyword knowledge management with the performance of SMEs. Next, look for the keywords knowledge management with artificial intelligence and innovation and link them to the performance of SMEs. Furthermore, 40 articles were selected that were relevant to this topic. Vosviewer is used to map research trends through journal articles that are relevant to research issues. This study follows a study conducted by Singh et al. [37] and Vajpayee & Ramachandran [17], for the concept of knowledge management and performance. Then, the concepts of knowledge management, artificial intelligence and innovation use Ferraris [24]. In this study, the authors use an exploratory approach to develop prepositions on research that has not been studied in any context. This study uses vosviewer to map research trends through journal articles that are relevant to the research issue.

3 Results and Discussion

Before further analyzing the article, the researcher identified the article using the VOSviewer application. Firm performance is a keyword in article screening. The following is the result of the VOSviewer visualization in Fig. 2

Visualization of research trends in Fig. 2 explains that there is a direct link between knowledge management, artificial intelligence and innovation with firm performance. The big circle on firm performance shows that research related to firm performance has been carried out a lot, meanwhile firm performance related to artificial intelligence is still rare. Furthermore, in Fig. 3 with the keywords knowledge management, it shows a direct relationship between knowledge management and artificial intelligence and innovation.
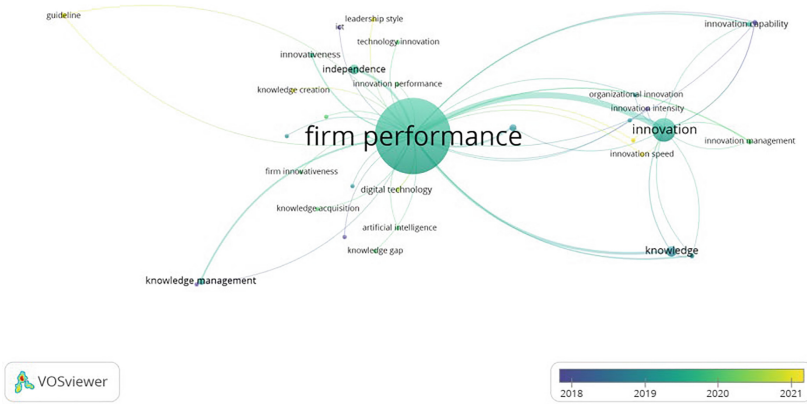
Fig. 2. Visualization of Research Trends on firm performance
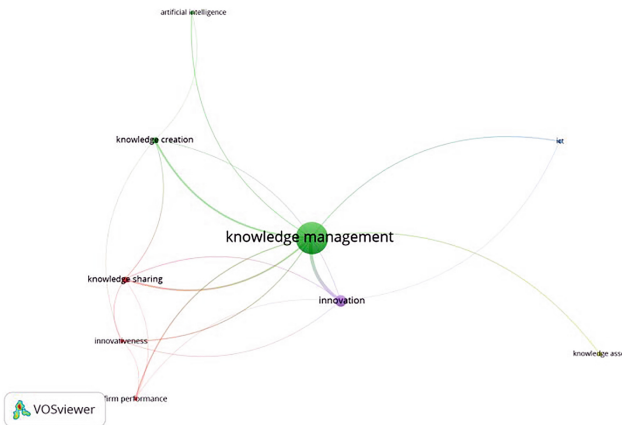
Fig. 3. Visualization of Research Trends on Knowledge Management

From the several articles analyzed, it appears that there is a close relationship between knowledge management, artificial intelligence and innovation on firm performance. Knowledge management can improve SMEs Performance [6] with new ideas [17]. Knowledge management influences the performance of SMEs [24], both directly and indirectly on innovation [23]. Previous studies have shown the close relationship between knowledge management and innovation and SMEs performance.

A close relationship is also shown by knowledge management and artificial intelligence based on the literature review conducted. Artificial intelligence can assist and potentially replace human decision making in innovation management [33]. Knowledge management and artificial intelligence support the knowledge base to achieve success in internet business [19]. Artificial intelligence has a positive effect on employee performance which will certainly improve organizational performance [35]. This literature review shows that artificial intelligence mediates knowledge management on

organizational performance. Innovation also mediates artificial intelligence on SMEs performance. Artificial intelligence is the best choice in improving organizational performance.

4   Conclusions

In this paper, the authors propose a conceptual model of knowledge management, artificial intelligence and innovation with SMEs performance. It can be concluded that knowledge management affects artificial intelligence and innovation. Besides that, artificial intelligence can develop innovation performance and have an impact on SME performance. It is noted that artificial intelligence has a constructive role to play in the future. The challenges in implementing artificial intelligence systems faced by innovation management are related to the technology itself. Humans are assigned to implement the relationship between technology and humans with artificial intelligence and innovation.

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