

Received: December 2022

Accepted: June 2023

DOI: 10.7862/rz.2023.mmr.08

Kassaye DEYASSA¹

DYNAMIC CAPABILITIES AND INNOVATION IN SMALL AND MEDIUM-SIZED ENTERPRISES (SMES): A SYSTEMATIC LITERATURE REVIEW OF PRIOR STUDIES

Based on previous studies, this study presents the role of dynamic capabilities and innovation in maintaining a competitive advantage for SMEs. This article is based on a literature review. Forty articles from JSTOR databases were selected for the study. The study period is between 2011 and 2020, and the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) method was used. The results show that despite the contribution of Asian countries, almost 70% of studies on dynamic capabilities and innovation in SMEs in the Global North are conducted in Europe. Less attention has been paid to the Global South, which depends more on SMEs than large companies to enrich the economy. This study provides a clearer picture of the ideas through an empirical application that complements current vague notions. The author argues that more research needs to be done on dynamic capabilities and innovation in SMEs in the Global South.

Keywords: Dynamic capability, collaboration, innovation, SMEs.

1. INTRODUCTION

The concepts of dynamic capability and innovation implementation in SMEs have received much attention recently (Weaven, Quach, Thaichon, Frazer, Billot, Grace., 2021). Due to the more dynamic business environment and increasing globalization, researchers and practitioners agree that dynamic capability and innovation are an emerging trend in corporate innovation strategies (Torchia, Calabrò, 2019), as they provide opportunities for companies to achieve profits with inadequate resources (Siems, Land, Seuring, 2021). Dynamic capacity and innovation for enterprises, the extraction of knowledge from external and internal sources to enhance innovation performance, have received much attention in dynamic capability and innovation study (Torchia, Calabrò, 2019). The primary function of dynamic capability and innovation is to reconfigure internal and external resources and achieve the knowledge function in organizations (Alves, Barbieux, Reichert, Tello-Gamarra, Zawislak, 2017). Chesbrough and Bogers (2014) emphasized the importance of the inflow and outflow of knowledge. They pointed out that these are the

¹ Kassaye Deyassa, Cracow University of Economics, Poland; e-mail: deyassakassaye@gmail.com.
ORCID: 0000-0002-7092-831X.

main characteristics that underpin the notion of dynamic capability and the concept of innovation.

Large companies are good at implementing dynamic capabilities and innovation strategies because of their organizational strategy and structure. The literature confirms that previous studies on dynamic capabilities and innovation have mainly focused on large companies (Kodama, 2017; Nambisan, Wright, Feldman, 2019). Therefore, the gap in implementing dynamic capabilities and innovation practices in SMEs needs to be investigated (Bigliardi, Galati, 2016). Recent studies show that the focus has shifted from large companies to SMEs (Janssen, Castaldi, Alexiev, 2018; Torchia, Calabrò, 2019).

SMEs are not as critical as large companies in implementing dynamic capabilities and innovation strategies due to their specific organizational structure, strategy, and management capabilities. These aspects are crucial for SMEs to achieve effective results (Bigliardi, Galati, 2016). Therefore, there is a gap in implementing SMEs' dynamic capabilities and innovation practices.

Therefore, this study aims to present the role of dynamic capabilities and innovation in maintaining a competitive advantage for SMEs based on previous studies. The following research questions can be answered by implementing the set objectives and observing the research trends in the field of dynamic capabilities and innovation:

RQ1: What internal and external factors influence the implementation of dynamic capabilities and innovation in SMEs?

RQ2: What are the main barriers for SMEs to implementing dynamic capabilities and innovation?

2. LITERATURE REVIEW

2.1. Dynamic capabilities: An overview of their role

David Teece and Gary Pisano first developed the concept of dynamic capabilities in 1994 to complement the resource-based approach (Derayati, 2020). The starting point is to leverage the resource base to create a competitive advantage. A firm's resource base includes its tangible, intangible, and human assets, and capabilities that it owns, controls, or has access to. A company's resources are considered something that companies can use to achieve their goals (Warner, Waeger, 2019). Over time, the strategy literature has become very interested in the survival and growth of firms under changing conditions. A new stream of literature has gained prominence in this area that views dynamic capabilities as critical for creating a sustainable, evolving competitive advantage in organizations. The dynamic capabilities perspective focuses on an organization's ability to transform, build, and recombine static resources into new, strategically valuable combinations to create long-term value (Laaksonen, Peltoniemi, 2018).

The study of dynamic capabilities offers insights into organizational change and how organizational forms, practices, and competencies are shaped by the organization's environment and history (Teece, 2018). Teece, Pisano, Shuen (1997) postulated that the nature of a firm's dynamic capabilities and competitive advantage depend on the firm's management and organizational processes. The firm's management and administrative processes are shaped by its specific asset position (internal assets and external environment) and its history (i.e., constrained and guided by its past and present). Management and organizational processes refer to the way things are done within an organization or the routines or patterns of actual practice and learning. Therefore, this

introduction to the dynamic capabilities' perspective integrates insights from business and management theories to address strategic management issues.

A dynamic, evolutionary aspect characterizes the dynamic capabilities perspective. It recognizes that a firm's capabilities must change with the environment to gain a sustainable advantage for the future through new and adapted assets and capabilities. This critical step forward in explaining how organizations sustain advantage aims to consider the processes that contribute to the evolution and adaptation of an organization's capabilities, rather than attributing competitive advantage to possessing valuable, rare, and unique resources (Yadav, Han, Kim, 2017). From an interdisciplinary perspective, the dynamic capabilities approach draws on a synthesis of insights from different theoretical traditions, including evolutionary economic theory (Nelson, Dosi, Helfat, Pyka, Saviotti, Lee, Dopfer, Malerba, Winter, 2017) and the behavioral theory of the firm (Shinkle, Hodgkinson, Gary, 2021), as a foundation for the perspective, with elements from a knowledge-based view of business and entrepreneurship (Tece, 2018).

Extending some of the basic ideas of corporate behaviour theory, which overcomes some of the limitations of mainstream economics, such as optimization and equilibrium models, scholars have argued that an understanding of corporate behaviour should include individuals and organizations (Abubakar, Elrehail, Alatailat, Elçi, 2019).

2.2. Innovation: An overview of its role

Innovation is defined as the purposeful inflow and outflow of knowledge to accelerate internal innovation and expand the market for external use of innovation (Spender, Corvello, Grimaldi, Rippa, 2017). Innovation can manifest in three ways, depending on the direction of knowledge flow (Ahn, Minshall, Mortara, 2017): inbound, outbound, and coupled. Inbound innovation involves external resources and knowledge flowing into firms from outside, including insourcing and in-licensing, minority investments, acquisitions, joint ventures, research and development, collaborations, research funding, technical and scientific services, etc. Outbound innovation includes the flow of internal resources and knowledge from firms, such as licensing, innovation in sales projects, joint ventures for technology commercialization, technical and scientific services, and equity investments (Ahn et al., 2017). Finally, the coupled mode involves co-creation with complementary partners through alliances, collaborations, and joint ventures. Companies using the coupled mode combine the outside-in process with the inside-out process to bring ideas to market, innovate, and commercialize together. These different modes of innovation lead to multiple types and scales of strategic hiring, so it is also necessary to distinguish them to identify barriers more accurately to innovation (Albats, Alexander, Mahdad, Miller, Post, 2020).

Such differences may be necessary for SMEs that suffer from a lack of knowledge, resources, and skills that limits their ability to deal with barriers to innovation. Previous research has shown that SMEs innovate extensively even under challenging conditions by taking advantage of smallness (Albats et al., 2020). SMEs that leverage innovation activities achieve positive outcomes in their innovation performance (Väyrynen, Helander, Vasell, 2017). However, there is no academic consensus on what forms of innovation they use or how they deal with potential obstacles. Leckel et al. (2020) focus more on outbound innovation due to SMEs' lack of resources and capabilities.

In contrast, large companies focus more on research and development and inbound activities. Albats et al. (2020) also point out that SMEs' inbound innovation activities are more pronounced than outbound innovation activities. Overall, innovation risks may be a more significant barrier for SMEs than large firms (Väyrynen et al., 2017). However, few

empirical studies address the different types of innovations or detail what barriers they pose to SMEs.

3. RESEARCH METHODOLOGY

This study aims to present the role of dynamic capabilities and innovation in maintaining a competitive advantage for SMEs based on previous studies. Recently, researchers have been interested in knowing the impact of dynamic capabilities and innovation in SMEs. Research has also shifted to gaining a competitive advantage in a changing market environment and looking for other ways to integrate dynamic capabilities and innovation into business practices.

From 2011 to 2020, a systematic literature review of studies on dynamic capabilities and innovation in SMEs was conducted. According to Mikelf et al. (2019), a systematic literature review seeks to address problems in the current literature and identify, critically evaluate, and combine appropriate studies that have been conducted in a particular area by addressing research questions. The Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) explain selecting and rejecting articles. PRISMA helps researchers improve the reporting of systematic literature reviews (Page et al., 2021, Rethlefsen et al., 2021). The study draws on forty published articles from JSTOR databases and selects at least thirty highly cited articles published between 2011 and 2020.

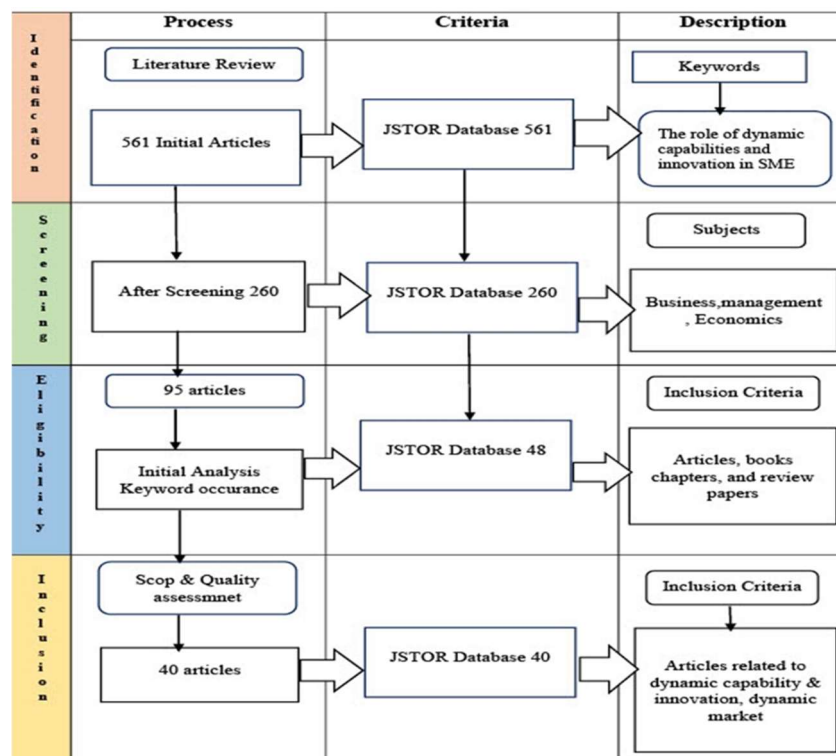


Figure 1. Research model according to PRISMA

Source: own elaboration.

The JSTOR database was searched for relevant literature as of February 2022. The search was conducted using “the role of dynamic Capabilities and Innovation in SME”. In addition, the search yielded 561 literature searches. Although the concepts of dynamic capabilities and innovation were first introduced in 1994 and 1997, the number of publications has increased tremendously over the past fifteen years. After selecting the literature search from 2011 to 2020, 260 literature searches were found. The researcher excluded the literature searches published under the other topics except for management and economics, leaving the researcher with 95 literature searches. The researcher chose articles as the document type and selected the works with 30 or more citations from the analysis as more reliable while maintaining the quality standard. The remaining articles were 48. After deleting the repeated articles and excluding irrelevant articles, the remaining articles were reduced to 40. Figure 1 summarizes the selection process.

The identified articles underwent extensive screening to identify good articles for quality assessment. Articles with thirty or more citations were selected to understand the concepts better. Strict care was taken not to duplicate papers during the selection process.

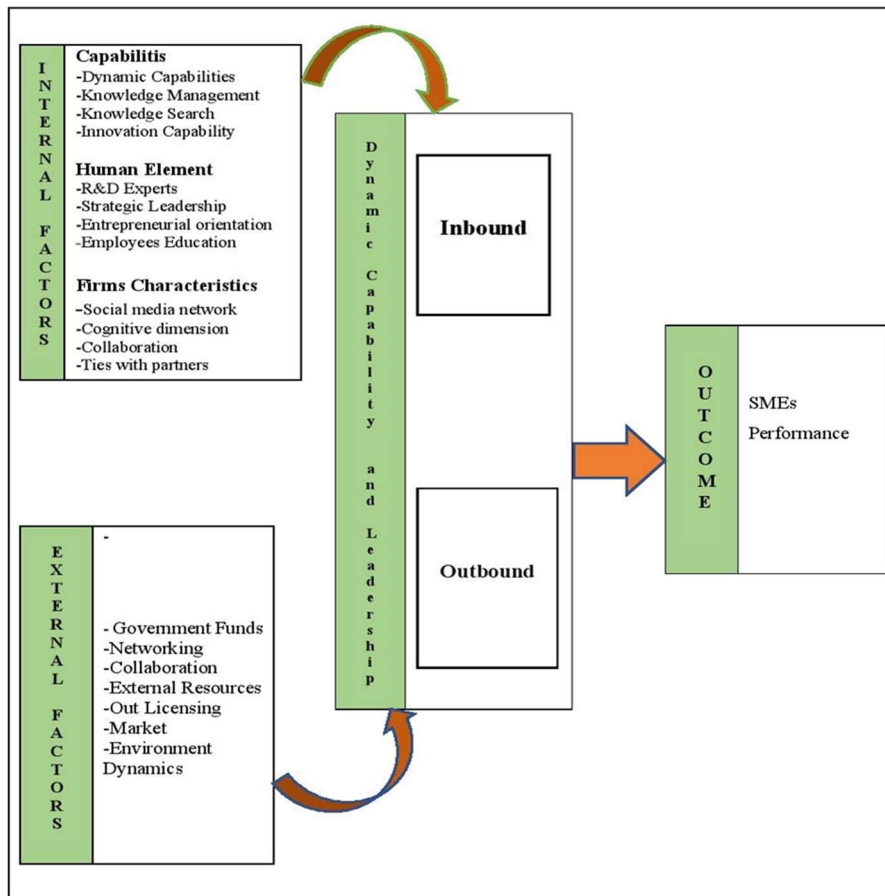


Figure 2. Reviewing factors of Dynamic Capability and Innovation and their outcomes
Source: own elaboration.

This review was also based on peer-reviewed original articles to meet the eligibility and inclusion criteria. The researcher is interested in studying dynamic capabilities and innovation from the perspective of companies and managers. No other areas of study were selected for this study. JSTOR was chosen for article selection because it contains many articles published in management and business (Klebel, 2018). Only articles published in English were selected to ensure comprehensibility and global acceptance.

This study provides qualitative and mixed methods research data from 2011 to 2020. Forty articles from JSTOR-indexed journals were selected for analysis. The corresponding metadata was exported, and a descriptive analysis of the literature was conducted based on the year of dissemination, topic areas, and distribution of countries practicing dynamic capabilities and innovation to achieve a competitive advantage in their SMEs. The year-based analysis monitored the number of publications over ten years. An industry analysis was conducted to identify the industries within SMEs that practice dynamic capabilities and innovation. This systematic review also identified the internal and external drivers of dynamic capabilities and innovation and summarized its findings in the research framework shown in Figure 2.

4. THE ANALYSIS OF BIBLIOMETRIC DATA

This section examines the number of articles selected in the review, the industry sector, the number of citations, and the journals in which the articles were published.

Figure 3 shows the studies of the selected articles on dynamics and innovation in SMEs from 2011 to 2020. The results refer to the journals per year but only to the frequently cited studies. We see that 2015 and 2019 had the most published articles with high citation reports, while 2020 had only one cited article with more than 20 citations.

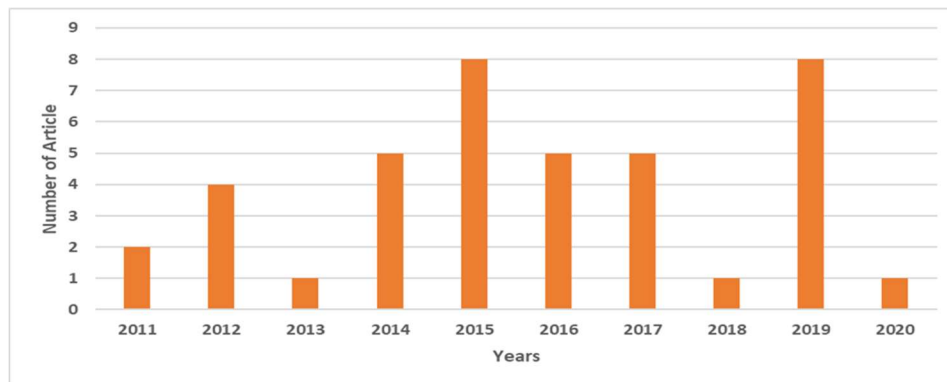


Figure 3. Publications on dynamic capabilities and innovation in SMEs in the years 2011–2020

Source: JSTOR databases.

Based on an industry sector, Figure 4 shows the sectors of industries that use dynamic capabilities and innovation practices. Some articles referred to SMEs in their study, while the remaining articles did not mention which sector was included. Of the selected studies, 23 articles were conducted in the manufacturing and service sectors. Manufacturing is the most studied sector of SMEs practicing dynamic capabilities and innovation, and the

number of studies totalled 18 selected articles. 5 articles were studied in the service sector, and the rest were conducted in other industrial sectors. Figure 4 shows that dynamic capabilities and innovation practices are more widespread in manufacturing and service SMEs than in other sectors.

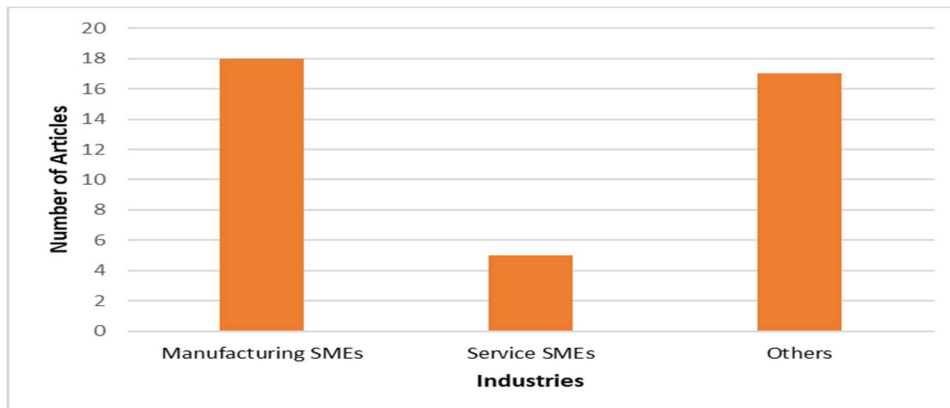


Figure 4. Number of articles on dynamic capabilities and innovation in SMEs by Industries

Source: JSTOR databases

Table 1. Journals and number of publications

Journals	Number of Publications
Small Business Economics	6
Journal of International Business Studies	4
Journal of Enterprising Culture	3
Journal of International Marketing	3
Journal of Knowledge Management	2
Emerging Markets Finance & Trade	2
Creativity and Innovation Management	2
Strategic Management Journal	2
Journal of East European Management Study	2
Management International Review	2
Journal of Economic Geography	2
Journal of Business Ethics	2

Source: JSTOR databases.

Based on the distribution by continent, one of the interesting findings of this study is the coverage of dynamic capability and innovation studies in the global North and South. Figure 5 shows that nine studies were conducted in the global south. The rest were conducted in the global North, indicating a significant gap in the lack of studies and practices on dynamic capabilities and innovation in SMEs in the Global South. The results are consistent with the study of Al-Hanakta et al. (2021). From the global North, Italy is the most significant contributor to scientific research in dynamic capability and innovation.

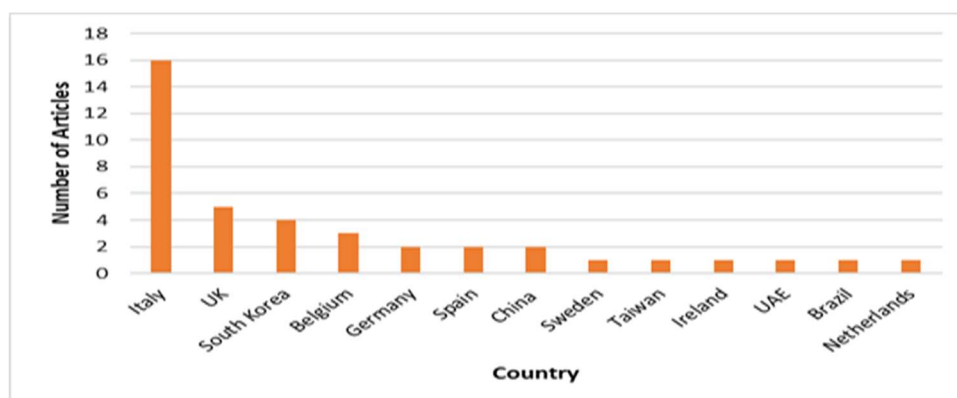


Figure 5. Number of articles on dynamic capabilities and innovation in SMEs by country

Source: JSTOR databases.

The minimum standard for paper selection for this study is thirty citations per article. Cavusgil and Knight (2015) is the most cited article with more than 410 citations in the selected field. Table 2 summarizes the ten most cited articles with author and year of publication.

Table 2. Journals, Articles, and number of citations

No.	Title of the articles	Authors	Journal	Cited by
1	The born global firm: An entrepreneurial and capabilities perspective on early and rapid internationalization	Cavusgil & Knight (2015)	Journal of International Business Studies	410
2	Innovation and internationalization through exports	Cassiman & Golovko (2011)	Journal of International Business Studies	296
3	Open innovation practices in SMEs and large enterprises	Spithoven <i>et al.</i> , (2013)	Small Business Economics	278
4	Open Innovation in SMEs: A Systematic Literature Review	Torchia & Calabrò (2019)	Journal of Enterprising Culture	214
5	Entrepreneurship and dynamic capabilities: how firm age and size affect the 'capability enhancement-SME performance' relationship	Arend (2014)	Small Business Economics	157
6	Firm Innovativeness and Export Performance: Environmental, Networking, and Structural Contingencies	Boso <i>et al.</i> , (2013)	Journal of International Marketing	149
7	DOES R&D OFFSHORING LEAD TO SME GROWTH? DIFFERENT GOVERNANCE MODES AND THE MEDIATING ROLE OF INNOVATION	Rodriguez & Nieto (2016)	Strategic Management Journal	91
8	On the path towards open innovation: Assessing the role of knowledge management capability and environmental dynamism in SMEs	Martinez-Conesa <i>et al.</i> , (2017)	Journal of Knowledge Management	78
9	SMEs strategic networks and innovative performance: a relational design and methodology for knowledge sharing	Vătămănescu <i>et al.</i> , (2020)	Journal of Knowledge Management	68
10	Entrepreneurs' creativity and firm innovation: the moderating role of entrepreneurial self-efficacy	Ahlin <i>et al.</i> , (2014)	Small Business Economics	60

Source: JSTOR databases.

To determine the research priorities in the current literature, the researcher identified four research directions. This section classifies the literature and identifies the primary research directions on SME dynamic capabilities and innovation.

4.1. Influence of internal factors on the development of dynamic capabilities and innovation

Inbound dynamic capabilities and innovation are continuously important and help tap external sources of knowledge so that they do not have to rely solely on their internal resources. At the same time, outbound dynamic capabilities and innovation are important to leverage ideas from external sources (Schoemaker et al., 2018). SMEs' internal sources serve as the backbone for dynamic capabilities and innovation. Arend (2014) emphasized the importance of leveraging externally acquired knowledge for dynamic capabilities and innovation in SMEs. They focused on capacity building through research centres at the inter-organizational level to achieve dynamic capabilities and innovation in firms.

Canhoto et al. (2021) discovered three dynamic capabilities for organizations to adopt leadership practices. These are reconfiguration, perception, and seizure. The reconfiguration capability refers to an organization's ability to respond effectively to rapid changes in a dynamic and turbulent market environment. Perceptual capability leads to continuous assessment and monitoring changes in a changing market environment. Perceptual capability is associated with an investment in innovative technology and is also related to additional assets and a willingness to seize current opportunities. Martinez-Conesa et al. (2017) claim that a changing environment provides good opportunities for companies to outperform their competitors. Therefore, companies should always be ready and respond quickly to changes in the market environment to benefit from a sustainable advantage.

Torchia & Calabrò (2019) stated that dynamic capabilities and innovation are important to respond to a dynamic and competitive market environment. In a changing market environment, internal and external resources and knowledge are essential. In addition, companies should overcome resource constraints by collaborating with other players and conducting research and development. However, internal management capacity and expertise are required to develop and utilize new external knowledge (Albors-Garrigós et al., 2011). Internal research and development are a critical component of a company's competitiveness. Internal research and development depend on the expertise of the research and development teams that perform the required activities. Government-funded research and development assistance can help develop dynamic capabilities and innovation in firms (Hakaki et al., 2020). Torchia & Calabrò (2019) find that organizational factors such as engagement-based HR practices positively influence dynamic capabilities and innovation.

Fabrizio et al. (2021) argue that companies with dynamic capabilities and innovation have more engaged R & D teams than companies with closed innovation. On the other hand, Albors-Garrigós et al. (2011) find that small firms are less likely to engage in R & D than medium-sized firms. The tendency of companies to use research collaborations depends precisely on the number of managers and research experts. In medium-sized companies, research collaboration depends on the number of managers (Albors-Garrigós et al., 2011).

The decision-making process in SMEs is usually centralized and made at the management level. Management has a significant influence on key strategic decisions, such as adopting dynamic capabilities and innovation strategies (Bogers et al., 2019). Boegers et al. (2019) pointed out the role of top management in advancing the organization. These

authors suggested that strategic leadership and good human resources play an essential role in promoting an organization's emotional capabilities and innovation. They also found that managers' entrepreneurial skills, academic background, and experience are related to implementing dynamic capabilities and innovation in organizations.

Ramirez-Portilla et al. (2017) identified different innovation approaches for companies: open, closed, and interactive. The authors grouped companies by their degree of openness, using breadth and depth as the two terms used by Janssen et al. (2018). The authors examined the internal and external (determinants) of the experimental groups. Braganza et al. (2017) discuss how Big Data can be used to create business opportunities and innovative solutions. Since Big Data comes from external sources, it represents an opportunity to maintain and improve dynamic capabilities and innovation effectiveness. Sharing knowledge, technology, and information also helps companies deal with the dynamic business environment, which is reflected in the company's innovation performance (Vătămănescu et al., 2020).

4.2. Influence of external factors on the development of dynamic capabilities and innovation

SMEs are good at developing inventions but cannot commercialize their products due to resource constraints (Cavusgil, Knight, 2015). SMEs rely on their dynamic capability and innovation to obtain and reconfigure resources to implement their strategies. Fabrizio et al. (2021) argue that SMEs collaborate with external partners to bring new products to market, while SMEs using closed innovation make incremental innovations to existing products. Companies use external resources to increase the flexibility of their functions, minimize risks, shorten the innovation timeframe, and minimize costs (Cavusgil, Knight, 2015). Dogbee et al. (2020) emphasize that companies should be careful in selecting practical innovation partners. Ko and Liu (2017) explore that an important driver of dynamic capabilities and innovation practices is identifying opportunities to strengthen firms' new technologies beyond their business. Sonntag and Vera (2018) emphasize the importance of dynamism, innovation capabilities, networks, intelligence, and barriers to understanding the advantages of emerging market firms.

It is helpful for companies to collaborate with external partners to develop innovative services and products (Spithoven, Vanhaverbeke, Roijakkers, 2013). Companies need to increase their competitiveness by collaborating with higher education institutions, research institutes, and businesses to bring technologies to market through dynamic capabilities and innovation (Fabrizio et al., 2021). According to Hakaki et al. (2020), contrary to previous findings, a collaboration between higher education institutions and industry is unnecessary for business dynamism and innovation development.

Battaglia and Neirotti's (2020) study suggests that technology acquisition is helpful in R & D collaboration for firms in manufacturing, services, and other sectors. Interacting with other firms to share information and gain work experience allows firms to benefit from knowledge outside the firm and develop dynamic and innovative capabilities (Cavusgil, Knight, 2015). Battaglia and Neirotti (2020) also analysed various collaborative activities related to dynamic capabilities and innovation and found that intra-firm R & D is positively associated with product and service innovation. Cassiman and Golovko (2011) found that vertical collaboration is associated with radical innovation, and horizontal collaboration within firms is associated with incremental innovation. Paradkar et al. (2015) claim that collaboration with large companies is the most effective way for start-ups to develop dynamic capabilities and innovation. Since large company start-ups operate

differently from small and medium enterprises, constrained by novelty and small size, SMEs should collaborate with their stakeholders, customers, and suppliers to find an innovative approach to overcome this problem. In this regard, leadership plays an essential role in understanding the dynamic capability and innovation process (Hutton et al., 2021). See Table 3 for the antecedents of dynamic capability and innovation in organizations.

Table 3. Antecedents of dynamic capability and innovation in the literature

Authors	Antecedents of dynamic capability and innovation
Braganza <i>et al.</i> (2017)	Resource management in big data initiatives: Process and dynamic capability
Tseng & Lee (2014)	The effect of knowledge management capability and dynamic capability on organizational performance
Martines-Conesa <i>et al.</i> (2017)	On the path towards open innovation: Assessing the role of knowledge management capability and environmental dynamism in SMEs
Vătămănescu <i>et al.</i> (2020)	SMEs strategic network and innovative performance: A relational design and methodology for knowledge sharing
Hakaki <i>et al.</i> (2020)	An optimized for innovation success in manufacturing SMEs
Spithoven <i>et al.</i> (2013)	Absorptive capacity
Canhoto <i>et al.</i> (2020)	Digital Strategy aligning in SMEs: A dynamic capability perspective
Sunday & Vera (2018)	Examining information and communication technology (ICT) adoption in SMEs: A dynamic capability approach
Teirlinck & Spithoven (2011)	Formal research and development management and research collaboration and research and development outsourcing in SMEs
Ko & Liu (2017)	Environmental Strategy and competitive advantage: The role of SMEs' dynamic capability

Source: JSTOR databases.

4.3. Barriers to dynamic capabilities and innovation

The literature on dynamic capabilities and innovation discusses how large companies integrate dynamic capabilities and innovation into their strategies and practices to innovate successfully. However, in the case of SMEs, this is unlikely to happen as they face various barriers to leveraging their resources. Table 4 shows some of the key barriers to dynamic capabilities and innovation in firms identified by the researcher.

Table 4. Barriers toward Dynamic Capability and Innovation

Authors	Lack of management academic background	Lack of experience	Lack of collaboration	Financial issues
Lin <i>et al.</i> (2016)	✓	✓	✓	✓
Vrontis <i>et al.</i> (2020)	✓		✓	✓
Cavusgil & Knight (2015)		✓	✓	✓

Source: JSTOR databases.

Four main barriers to dynamic capabilities and innovation were identified: lack of academic management background, lack of experience, collaboration, and financial issues. The barriers can help business leaders understand the factors considered barriers to dynamic capabilities and innovation to address the barriers (Lin et al., 2016). Since SMEs are different in size and performance from large enterprises, the nature of their problems

and barriers are also not the same. Small and medium enterprises face problems with a lack of infrastructure, qualified and experienced staff, a lack of up-to-date information, and limited financial resources (Cavusgil, Knight, 2015). Similarly, Vrontis et al. (2020) pointed out that lack of financial resources, skills and capabilities, management complexity, partner behaviour, and lack of infrastructure are barriers to implementing dynamic capabilities and innovations.

Companies in the Global North have mastered innovative pathways but still face various obstacles that hinder their innovation activities (De Silva et al., 2021). SMEs in the Global South contribute to economic growth and should not be neglected. DeSilva et al. (2021) suggest that countries address these issues by identifying new strategies and innovation centres that can work with external partners to promote innovative practices in SMEs.

4.4. The outcome of dynamic capability and innovation Studies

According to Cassiman and Golovko (2011), dynamic capabilities and innovation can improve the performance of large companies. Various studies on dynamism and innovation suggest that they are beneficial for large firms. However, various studies on SMEs also show a positive impact of dynamic capabilities and management activities on innovation performance. Du, Zhu, Li (2022) found that different dynamic capabilities and innovation activities lead to different performance outcomes for SMEs. According to their study, technology sourcing can influence radical innovation, while technology scouting is associated with innovation performance. Spithoven et al. (2013) also found that knowledge acquisition, a form of large dynamic capabilities and innovation, influences firm innovation performance. Väyrynen et al. (2017) identified different ways of knowledge scouting and described how companies use external sourcing to improve their dynamic capabilities and innovation implementation.

Start-up resource scarcity drives companies to choose dynamic capabilities and innovations to meet their strategic needs (Paradkar et al., 2015). In some cases, dynamic capabilities and innovative practices impact small and medium enterprises more than large enterprises (Cassiman, Golovko, 2011). Resource scarcity in medium and small firms can be used as an incentive factor to search for new knowledge (Spithoven et al., 2013). VU However (2020) argues that there is insufficient evidence that knowledge from external sources has a positive impact on the implementation of dynamic capabilities and innovations. Weerawardena and Mavondo (2011) found that few small and medium-sized enterprises succeed in developing dynamic capabilities and innovations compared to large companies.

Scuotto et al. (2017) argue that the role of social media in improving dynamic capabilities and innovation development in SMEs is crucial, confirming that receptivity and cognitive dimension contribute to building informal collaboration with external partners. Similarly, Veglio and Zucchella (2015) also emphasize the importance of strong connections between SMEs and their partners in developing their dynamic capabilities and innovation capacity.

Zacca and Dayan (2018) developed a model linking corporate strategy, dynamic capabilities, and innovation performance in small and medium-sized enterprises. They examined the influence of corporate strategy and its openness. Zacca and Dayan (2018) also identified how dynamic capabilities and innovation affect SME performance. Dogbee et al. (2020) found that openness contributes significantly to the dynamism and innovation performance of small and medium enterprises compared to large enterprises.

5. CONCLUSIONS

This study aims to present the role of dynamic capabilities and innovation in maintaining a competitive advantage for SMEs based on previous studies. This study is based on a literature review. Forty articles from JSTOR databases were selected for the study, and the research period is between 2011 and 2020: which was a primary selection criterion.

The first research question is answered by identifying the internal and external resources that small and medium enterprises need to build to improve their dynamic performance and innovation development. The importance of human resources for enterprises was discussed, and further study can establish a link between dynamic capabilities and innovation and the human resources of an enterprise to achieve its goals. The second research question was also answered by identifying four barriers to developing dynamic capabilities and innovation. These are lack of academic management knowledge, lack of management experience, lack of collaboration, and financial problems. The third research question answered those studies on dynamic capabilities and innovation that lead to the development of dynamic capabilities and the implementation of innovation in companies. Previous studies on dynamic capabilities and innovation suggest that they are beneficial for large companies. The studies found that different approaches to dynamic capabilities and innovation activities lead to different outcomes in SMEs' innovation performance.

Implication of the study

The results can be used by researchers conducting a study in related fields and by managers making decisions in SMEs. Governmental and non-governmental organizations can also use the results to develop policies and strategies. SMEs must strive to develop dynamic capabilities and constantly innovate to maintain and renew their competitive advantage. SMEs that operate internationally can leverage their competitive advantages to become more innovative. Research on dynamic capabilities and innovation has been conducted mainly in the global North. Therefore, future research can address the development of dynamic capabilities and innovation practices in SMEs in the Global South and identify the challenges involved and how to overcome them.

Research limitations

Many databases study the dynamic capabilities and innovation in SMEs in different periods. However, only the JSTOR database was used for study purposes within a limited period in this article. The second limitation of this study is that there are currently thousands of studies on dynamic capabilities and innovation. However, this study relies only on forty selected review articles.

Suggestions for future research directions

In this article, only the JSTOR database was used for study purposes. Future studies could use other databases that contribute to the development of dynamic and innovative activities of SMEs. Most studies on dynamic capabilities and innovation in SMEs have focused on the manufacturing and service sectors of industry. However, more attention should be paid to other sectors of industry. In addition, most studies on SMEs have been conducted in the global North, and SMEs in the global South should also be considered in future studies. In the future, longitudinal studies may reveal other perspectives on the process that may not have been considered before.

REFERENCES

- Abubakar, A.M., Elrehail, H., Alatailat, M.A., Elçi, A. (2019). *Knowledge management, decision-making style, and organizational performance*. "Journal of Innovation & Knowledge", 4(2).
- Ahlin, B., Drnovšek, M., Hisrich, R.D. (2014). *Entrepreneurs' creativity and firm innovation: the moderating role of entrepreneurial self-efficacy*. "Small Business Economics", 43(1).
- Ahn, J.M., Minshall, T., Mortara, L. (2017). *Understanding the human side of openness: the fit between open innovation modes and CEO characteristics*. "R&D Management", 47(5).
- Albats, E., Alexander, A., Mahdad, M., Miller, K., Post, G. (2020). *Stakeholder management in SME open innovation: Interdependences and strategic actions*. "Journal of Business Research", 119.
- Albors-Garrigós, J., Etxebarria, N.Z., Hervás-Oliver, J.L., Epelde, J.G. (2011). *Outsourced innovation in SMEs: a field study of R&D units in Spain*. "International Journal of Technology Management", 55(1/2).
- Al-Hanakta, R., Illés, B.C., Dunay, A., Abdissa, G.S., Khalife, M.A. (2021). *The effect of innovation on small and medium enterprises: a bibliometric analysis*. "Visegrad Journal on Bioeconomy and Sustainable Development", 10(1).
- Alves, A.C., Barbieux, D., Reichert, F.M., Tello-Gamarra, J., Zawislak, P.A. (2017). *Innovation and dynamic capabilities of the firm: Defining an assessment model*. "Revista de Administração de Empresas", 57.
- Arend, R.J. (2014). *Entrepreneurship and dynamic capabilities: how firm age and size affect the 'capability enhancement – SME performance' relationship*. "Small Business Economics", 42(1).
- Battaglia, D., Neirotti, P. (2020). *Dealing with the tensions between innovation and internationalization in SMEs: A dynamic capability view*. "Journal of Small Business Management".
- Bigliardi, Galati, F. (2016). *Which factors hinder the adoption of open innovation in SMEs?* "Technology Analysis & Strategic Management", 28(8).
- Bogers, M., Chesbrough, H., Heaton, S., Teece, D.J. (2019). *Strategic management of open innovation: A dynamic capabilities perspective*. "California Management Review", 62(1).
- Boso, N., Story, V.M., Cadogan, J.W., Micevski, M., Kadić-Maglajlić, S. (2013). *Firm innovativeness and export performance: Environmental, networking, and structural contingencies*. "Journal of International Marketing", 21(4).
- Braganza, A., Brooks, L., Nepelski, D., Ali, M., Moro, R. (2017). *Resource management in big data initiatives: Processes and dynamic capabilities*. "Journal of Business Research", 70.
- Canhoto, A.I., Quinton, S., Pera, R., Molinillo, S., Simkin, L. (2020). *Digital strategy aligning in SMEs: A dynamic capabilities perspective*. "The Journal of Strategic Information Systems", 30(3).
- Cassiman, B., Golovko, E. (2011). *Innovation and internationalization through exports*. "Journal of International Business Studies", 42(1).
- Cavusgil, S.T., Knight, G. (2015). *The born global firm: An entrepreneurial and capabilities perspective on early and rapid internationalization*. "Journal of international business studies", 46(1).
- Chesbrough, H., Bogers, M. (2014). *Explicating open innovation: Clarifying an emerging paradigm for understanding innovation*. "New Frontiers in Open Innovation. Oxford: Oxford University Press, Forthcoming".

- De Silva, M., Al-Tabbaa, O., Khan, Z. (2021). *Business model innovation by international social purpose organizations: The role of dynamic capabilities*. "Journal of Business Research", 125.
- Dogbe, C.S.K., Tian, H., Pomegbe, W.W.K., Sarsah, S.A., Otoo, C.O.A. (2020). *Effect of network embeddedness on innovation performance of small and medium-sized enterprises: The moderating role of innovation openness*. "Journal of Strategy and Management", 13(2).
- Du, J., Zhu, S., Li, W.H. (2022). *Innovation through internationalization: A systematic review and research agenda*. "Asia Pacific Journal of Management".
- Fabrizio, C.M., Kaczam, F., de Moura, G.L., da Silva, L.S.C. V., da Silva, W.V., da Veiga, C.P. (2021). *Competitive advantage and dynamic capability in small and medium-sized enterprises: a systematic literature review and future research directions*. "Review of Managerial Science".
- Hakaki, A., Nikabadi, M.S., Heidarloo, M.A. (2020). *An optimized model for open innovation success in manufacturing SMEs*. "RAIRO-Operations Research", 55(6).
- Hossain, M. (2015). *A review of literature on open innovation in small and medium-sized enterprises*. "Journal of Global Entrepreneurship Research", 5(1).
- Hutton, S., Demir, R., Eldridge, S. (2021). *How does open innovation contribute to the firm's dynamic capabilities?* "Technovation", 106.
- Janssen, M.J., Castaldi, C., Alexiev, A.S. (2018). *In the vanguard of openness: which dynamic capabilities are essential for innovative KIBS firms to develop?* "Industry and Innovation", 25(4).
- Klebel, T. (2018). *Jstor: Import and Analyse Data from Scientific Texts*. "Journal of Open-Source Software", 3(28).
- Ko, W.W., Liu, G. (2017). *Environmental strategy and competitive advantage: The role of small-and medium-sized enterprises' dynamic capabilities*. "Business Strategy and the Environment", 26(5).
- Kodama, M. (2017). *Developing strategic innovation in large corporations – The dynamic capability view of the firm*. "Knowledge and Process Management", 24(4).
- Laaksonen, O., Peltoniemi, M. (2018). *The essence of dynamic capabilities and their measurement*. "International Journal of Management Reviews", 20(2).
- Leckel, A., Veilleux, S., Dana, L.P. (2020). *Local Open Innovation: A means for public policy to increase collaboration for innovation in SMEs*. "Technological Forecasting and Social Change", 153.
- Lin, H.F., Su, J.Q., Higgins, A. (2016). *How dynamic capabilities affect adoption of management innovations*. "Journal of Business Research", 69(2).
- Martinez-Conesa et al. (2017). *On the path towards open innovation: Assessing the role of knowledge management capability and environmental dynamism in SMEs*. "Journal of Knowledge Management", 21(3).
- Mikalef, P., Boura, M., Lekakos, G., Krogstie, J. (2019). *Big data analytics capabilities and innovation: the mediating role of dynamic capabilities and moderating effect of the environment*. "British Journal of Management", 30(2).
- Nambisan, S., Wright, M., Feldman, M. (2019). *The digital transformation of innovation and entrepreneurship: Progress, challenges, and key themes*. "Research Policy", 48(8).
- Nelson, Dosi, G., Helfat, C.E., Pyka, A., Saviotti, P.P., Lee, K., Dopfer, K., Malerba, F., Winter, S.G. (2018). *Modern Evolutionary Economics*. Cambridge University Press.

- Page, M.J., McKenzie, J.E., Bossuyt, P.M., Boutron, I., Hoffmann, T.C., Mulrow, C.D., Moher, D. (2021). *The PRISMA 2020 statement: an updated guideline for reporting systematic reviews*. "International Journal of Surgery", 88.
- Paradkar, A., Knight, J., Hansen, P. (2015). *Innovation in start-ups: Ideas filling the void or ideas devoid of resources and capabilities?* "Technovation", 41.
- Ramirez-Portilla, A., Cagno, E., Brown, T.E. (2017). *Open innovation in specialized SMEs: the case of supercars*. "Business Process Management Journal".
- Rethlefsen, M.L., Kirtley, S., Waffenschmidt, S., Ayala, A.P., Moher, D., Page, M.J., Koffel, J.B. (2021). *PRISMA-S: an extension to the PRISMA statement for reporting literature searches in systematic reviews*. "Systematic reviews", 10(1).
- Rodríguez, A., Nieto, M.J. (2016). *Does R&D offshoring lead to SME growth? Different governance modes and the mediating role of innovation*. "Strategic management journal", 37(8).
- Schoemaker, P.J., Heaton, S., Teece, D. (2018). *Innovation, dynamic capabilities, and leadership*. "California Management Review", 61(1).
- Shinkle, G.A., Hodgkinson, G.P., Gary, M.S. (2021). *Government policy changes and organizational goal setting: Extensions to the behavioral theory of the firm*. "Journal of Business Research", 129.
- Siems, E., Land, A., Seuring, S. (2021). *Dynamic capabilities in sustainable supply chain management: An inter-temporal comparison of the food and automotive industries*. "International Journal of Production Economics", 236.
- Spender, J.C., Corvello, V., Grimaldi, M., Rippa, P. (2017). *Startups and open innovation: a review of the literature*. "European Journal of Innovation Management", 20(1).
- Spithoven, A., Vanhaverbeke, W., Roijakkers, N. (2013). *Open innovation practices in SMEs and large enterprises*. "Small business economics", 41.
- Sunday, C.E., Vera, C.C.E. (2018). *Examining information and communication technology (ICT) adoption in SMEs: A dynamic capabilities approach*. "Journal of Enterprise Information Management", 31(2).
- Teece, D.J., Pisano, G., Shuen, A. (1997). *Dynamic capabilities and strategic management*. "Strategic management journal", 18(7).
- Teece, D.J. (2018). *Business models and dynamic capabilities*. "Long range planning", 51(1).
- Torchia, M., Calabrò, A. (2019). *Open innovation in SMEs: A systematic literature review*. "Journal of Enterprising Culture", 27(02).
- Tseng, S.M., Lee, P.S. (2014). *The effect of knowledge management capability and dynamic capability on organizational performance*. "Journal of Enterprise Information Management", 29(1).
- Väyrynen, H., Helander, N., Vasell, T. (2017). *Knowledge management for open innovation: Comparing research results between SMEs and large companies*. "International Journal of Innovation Management", 21(05).
- Vătămănescu, E.M., Cegarra-Navarro, J.G., Andrei, A.G., Dincă, V.M., Alexandru, V.A. (2020). *SMEs strategic networks and innovative performance: a relational design and methodology for knowledge sharing*. "Journal of Knowledge Management", 24(6).
- Veglio, V., Zucchella, A. (2015). *Entrepreneurial firms in traditional industries. Does innovation matter for international growth?* "Journal of International Entrepreneurship", 13(2).

- Vrontis, D., Basile, G., Andreano, M., Mazzitelli, A., Papasolomou, I. (2020). *The profile of innovation driven Italian SMEs and the relationship between the firms' networking abilities and dynamic capabilities*. "Journal of Business Research", 114.
- VU, H.M. (2020). *A review of dynamic capabilities, innovation capabilities, entrepreneurial capabilities, and their consequences*. "The Journal of Asian Finance, Economics and Business", 7(8).
- Yadav, P.L., Han, S.H., Kim, H. (2017). *Sustaining competitive advantage through corporate environmental performance*. "Business Strategy and the Environment", 26(3).
- Weaven, S., Quach, S., Thaichon, P., Frazer, L., Billot, K., Grace, D. (2021). *Surviving an economic downturn: Dynamic capabilities of SMEs*. "Journal of Business Research", 128.
- Weerawardena, J., Mavondo, F.T. (2011). *Capabilities, innovation, and competitive advantage*. "Industrial Marketing Management", 40(8).
- Zacca, R., Dayan, M. (2018). *Linking managerial competence to small enterprise performance within the dynamic capability logic*. "Journal of Small Business and Enterprise Development", 25(2).

