

DYNAMIC CAPABILITIES IN A HIGH-VELOCITY ENVIRONMENT: THE EMERGENCE AS A REACTION TO THREATS

Alina CZAPLA

University of Economics in Katowice; alina.czapla@edu.uekat.pl, ORCID: 0000-0001-6027-495X

Purpose: The study aims to investigate the emergence of dynamic capabilities (DCs) of enterprises that have appeared as a result of threats caused by high-velocity environments.

Design/methodology/approach: In the qualitative research, DCs of Polish companies were examined, to answer the question of how companies responded to turbulence in the business environment caused by the pandemic crisis. In-depth interviews with managers of 20 outstanding companies were conducted to explore the specific processes and activities, companies undertook to survive the crisis.

Findings: The emergence of dynamic capabilities for distressed enterprises in a high-velocity environment referred to both lower- and higher-order DCs, companies from various industries, also small and medium-sized enterprises. Radically innovative actions by companies during the crisis were aimed mainly at survival, but also at protecting employees, customers, and society.

Research limitations/implications: The study has some limitations. Firstly, only Polish enterprises were studied, and therefore the results cannot be directly applied to other countries. Second, this is an exploratory study that requires follow-up to deepen the topic to enable future quantitative research.

Practical implications: Companies may use the results of this project as an incentive for developing their DCs. They can also use the examples discussed as guidance for future actions, especially in a turbulent business environment.

Originality/value: The paper notes the importance of a non-routine approach to dynamic capabilities. This is important for management as a scientific discipline, but also for managers, as it indicates various possible paths for DCs' development.

Keywords: dynamic capabilities, high-velocity environment, crisis, threats.

Category of the paper: Research paper.

1. Introduction

The dynamic capabilities perspective (Teece, Pisano, Shuen, 1997; Eisenhardt, Martin, 2000) has been the center of interest for many researchers since the end of the last century. These change-focused capabilities can help companies deal with the dynamism of business environments (Hine et al., 2014).

Until recently, these capabilities were primarily considered in medium-velocity markets. Large, innovative enterprises, often related to modern technologies, were studied mainly. The prevailing view in the literature was that these capabilities are based on routines, or at least on simple rules (Andreeva, Ritala, 2016; Ritala, Heiman, Hurmelinna-Laukkanen, 2016). The actions of companies that were not based on such foundations were called ad hoc activities (Winter, 2003).

Research has shown that DCs are the basis for the development of ordinary capabilities (Winter, 2003). They also help achieve competitive advantage (Fainshmidt et al., 2019), and usually have a positive impact on company performance (Teece, 2014; Kolbe, Calderon, Frasquet, 2022), which is why companies were recommended to develop DCs.

However, in the high-velocity environment we have experienced during the pandemic crisis, the importance of DCs has changed. Companies needed DC and the resulting innovations not to be better than their competitors or achieve exceptional results, but to survive. During this period, DCs could also be observed in small local companies from various industries. DCs emerged in companies that did not need to introduce innovations before the crisis, and that had not previously developed innovative routines or rules (Khurana, Dutta, Ghura, 2022; Li et al., 2022)

This shows that DCs should be considered not only from the perspective of routines, but also from other perspectives (Teece, 2023; Zhang et al., 2023), and moreover, they can be examined in small and medium-sized enterprises from various industries. Although the number of papers on how companies fought for survival during the pandemic is very large, this research perspective is used very rarely. Hence the emergence of DCs in high-velocity environments has been identified as a research gap.

This study aims to partially fulfill this gap, by cross-sectional exploring innovative activities of Polish enterprises during the pandemic crisis from the perspective of non-routine-based dynamic capabilities.

In the qualitative study 20 in-depth interviews with managers of outstanding Polish companies were conducted to explore the specific processes and activities, companies undertook to survive the crisis. They were asked how their companies responded to turbulence in the business environment caused by the pandemic crisis.

2. Dynamic capabilities in a high-velocity environment

The answer to the dynamism of the business environments is the dynamic capabilities view (DCV) (Teece, Pisano, Shuen, 1997; Eisenhardt, Martin, 2000). This is nowadays one of the most influential schools in management theory (Schilke, Hu, Helfat, 2018; Mitreğa, 2019). It is also one of the most dynamic topics in the strategic management field (Kaur, 2019) and in firm-based performance-focused theory (Arend, Bromiley, 2009; Vogel, Güttel, 2012; Tseng, Lee, 2014; Wang, Senaratne, Rafiq, 2015). DCV has become one of the most important, but also controversial theoretical frameworks.

Dynamic capabilities (DCs) are defined in various ways, for instance as *the firm's potential to systematically solve problems, formed by its propensity to sense opportunities and threats, to make timely and market-oriented decisions, and to change its resource base* (Barreto, 2010, p. 271). They are a kind of abstract, more advanced capabilities, that allow to sense and seize opportunities and anticipate threats (Teece, 2007). They are change-focused and create not only new resources but also routines and operating capabilities (Verreynne et al., 2016). Companies use their DCs to build and adapt their resources to maximize the organization's fit with its environment (Schilke, 2014b). They gain and hold a competitive advantage in the market thanks to DCs (Teece, Pisano, 1994). DCs play an important role in reconfiguring the company's knowledge to create new knowledge resources as a response to market changes (Falasca et al., 2017).

Dynamic capabilities that a firm deploys depends on the velocity of the business environment (Verreynne et al., 2016). It should be noted that although the nomenclature may suggest something different, in both medium-velocity and high-velocity environments, changes can occur very quickly. The difference is that in a medium-velocity environment changes are predictable and linear, while in a high-velocity environment, we are dealing with uncertainty and non-linear changes (Eisenhardt, Martin, 2000). These changes may concern various aspects of the company's functioning, not only changes in technology, but also e.g. in product, demand, legal regulations, or competition activities, and not only the pace of changes but also their direction is important (McCarthy et al., 2010).

The difference between DCs in medium- and high-velocity environments can be explained based on the evolutionary theory, often used to explain economic processes. In nature, some species of animals or plants can change their environment, grow stronger, and gain an advantage. However, in crises, usually, not the strongest of them can deal with a rapidly changing environment (e.g. dinosaurs), but those that can adapt to sudden changes. In economic terms, this explains the difference between needed DCs in medium- and high-velocity environments. In a relatively stable business environment, companies can sense and seize opportunities, change their environment, and gain a competitive advantage. However, when the environment changes rapidly, DCs to deal with the threat take their value.

Before the pandemic, empirical studies on DCs have usually focused on rapidly changing technological sectors, on big innovative companies. The researchers' attention was focused mainly on the dynamic capabilities to generate market changes, rather than DCs to respond to changes in the environment. A large group of enterprises, especially small and medium-sized ones, did not need to develop DCs at that time, especially since, if underlying costs are taken into account, in a medium-velocity environment the costs of developing DCs may outweigh the benefits, and the positive impact of dynamic capabilities on the efficiency of operating routines can be observed mainly in high-velocity environments (Wilhelm et al., 2015).

The situation changed a bit during the last crisis when a lot of papers appeared on how companies fought to survive (Abubakar, 2020; Rahman et al., 2022). However, the empirical research on specific activities companies undertake concerning the changing business environment from the dynamic capabilities perspective is still limited. Some papers study the relationship between DCs and companies' survival (Chi, Ho, Lin, 2022; Weaven et al., 2021), and others the connection between DCs and new technology adaptation (Liu, Yang, 2021; Li et al., 2022; Ye et al., 2023).

Usually, DCs studies concern one specific capability, e.g. international marketing agility and its linking with new technology adoption (Thoumrunroje, Racela, 2022), multichannel integration and innovation capability in SMEs (Kolbe, Calderon, Frasquet, 2022), resilience capability by the adoption of digital technologies (Khurana, Dutta, Ghura, 2022). There is a lack of a broader view of dynamic capabilities. According to the above the non-routine perspective of dynamic capabilities in high-velocity environments, has been identified as a research gap.

3. Methodology

Twenty in-depth interviews with managers of Polish companies were conducted. Purposive sampling was applied (Etikan, 2016). The main criterion for the companies' selection was their interesting and varied ways of dealing with the pandemic crisis. The representatives of companies diverse in terms of size, age, and the nature of business were invited to participate in the interviews. Snowball sampling was used, because some respondents were able to point out examples of interesting activities of other companies. In the vast majority of cases, interviews took place in person, taking into account a previously prepared scenario. In two cases it was not possible, so online interviews were conducted. The general questions from the protocol constituted the framework for the conversations and they were supplemented with detailed questions on an ongoing basis. One interview with a key manager was conducted in each company. In total, it was almost 12 hours of interviews, and the average length of a single conversation was 35 minutes.

Informants were asked about their experiences with the pandemic crisis, how their companies responded to turbulence in the business environment, and how they reoriented their companies to adjust to the high-velocity environment. The aim of this study was to explore the specific processes and activities, companies undertook in the high-velocity business environment to survive. The company names have been anonymized, and the most important information about the respondents is provided in Table 1.

Table 1.
Companies description

Code	Company Type	Size	Market	Key Informants
I-1	Manufacturer of layettes for babies	Micro	B2C national	Partner/manager
I-2	Paint manufacturer	Big	B2B international	Member of the board
I-3	The organizer of fairs and conferences	Medium/big	B2B international	Director of the organizational and legal department
I-4	Seed producer	Medium	B2B international	Sales director
I-5	Tool manufacturer	Big	B2B international	Sales director
I-6	The restaurant	Small	B2B/B2C local	Manager
I-7	Language school	Micro	B2C local	Owner/manager
I-8	Chain of grocery stores	Medium	B2C local	Owners/managers
I-9	Investment support company	Medium	B2B international	Vice-chairman of the board
I-10	Cosmetology services	Small	B2C local	Manager
I-11	Pharmacy chain	Big	B2C national	Pharmacy manager
I-12	Event company	Micro/small	B2B	Owner/manager
I-13	Producer of event lighting installations	Small	B2B/B2C	Partner/manager
I-14	Legal and tax company	Medium	B2B	Member of the board
I-15	Wine company	Small	B2B national	Chairman of the board
I-16	Audit company	Small	B2B national	Manager
I-17	Consulting and training company	Small	B2B national	Manager
I-18	Manufacturer of snacks	Big	B2B international	Marketing director
I-19	Speech therapy and neurology clinic	Micro	B2C local	Head of the clinic
I-20	Construction company	Small	B2B/B2C national	Chairman of the board

Note: In the rest of the text, references to statements from individual interviews were made in the following way: e.g. (I-7/p6) - interview no. 7, page 6

Data was collected in two stages, the first stage included interviews 1-14 and lasted from November to December 2022. This series of interviews was then pre-analyzed. The second series of interviews (15-20) was conducted in March 2023 to confirm theoretical saturation. As the results of these studies were in line with previous findings, it was concluded that the collected data is sufficient. All twenty interviews were transcribed and they were subjected to the final analysis.

4. Research results

All informants, regardless of industry and company size, claimed that the pandemic was associated with uncertainty and threats:

... persisting in such uncertainty (I-12/p5),

... when the pandemic began, well, a little fear looked into our eyes (I-14/p1).

Their primary goal during this period was not competitive advantage or performance, but the survival of the company:

... we wanted to do something and have anything, to earn any money to ... survive (I-12/p4).

But then we were thinking about how to survive (I-14/p5).

However, other higher goals also appeared, such as employee care, customer care, and social care, which mobilized entire teams to intensify unconventional activities during this difficult period:

... we have never had an intention to reduce the level of employment on a large scale. We wanted to keep it at any cost... (I-3/p2),

... we took care of them (...) just not to leave these people. (...) We took care of our customers (I-10/p5);

... there was an action of masks. (...) We did it for charity (I-6/p2).

All surveyed companies introduced radical innovations at the enterprise level. There are three categories of change here: the introduction of a new product or service, a new or radically innovative process, or even a new business model.

New products and services were often related to the fight against the pandemic, for example, the production of masks (I-1; I-6), protective clothing (I-6), disinfection liquids (I-15), performing vaccinations (I-3, I-11), and opening a temporary hospital (I-3) or related to needs resulting from the pandemic, e.g. delivering shopping to people in quarantine (I-8), support in obtaining public aid (I-14). The second group of new products and services was the result of partial or complete blocking of the company's current operations due to lockdowns and other legal regulations. The company dealing with the organization of fairs, conferences, and promotion events opened a car cinema and started furniture production (I-3), the restaurant started food production (I-6), the organizer of corporation events started to provide digital

marketing services (I-12), the producer of event lighting installations started the production of interior business and private light decorations (I-13). The third group of new products and services resulted from the emergence of demand for them e.g. enabling online shopping in a network of local rural grocery shops (I-8). Of course, some of these products and services may be classified into several of the above categories.

New or radically innovative processes were most often related to remote work, transfer of activities to the Internet, or the use of modern technologies. Remote work was used both in quite typical situations, e.g. conducting training (I-14, I-17), working of sales representatives (I-2, I-4), less typical situations like running an office at a language school (I-7) or providing construction supervision (I-20), and in completely non-obvious ones e.g. performing accounting audits (I-16), or providing neurological and speech therapy for disabled people (I-19). Moving activities to the Internet was often necessary due to the restrictions introduced. The organizer of stationary corporation events quickly decided to transfer them to the Internet and involve the participants by home-delivered parcels with themed gadgets (I-12). The investment support company, based primarily on direct meetings with clients from around the world, immediately began operating mainly online (I-9). In turn, the adaptation of modern technologies has allowed the tax company to apply automated accounting processes (I-14) and a snack manufacturer to automate its production plant (I-18). A change in the business model was observed the least frequently. An example here is a restaurant that was transformed into a store selling its food products during the lockdown (I-6).

During the data collection, it was noticed that the surveyed companies could be divided into two groups. About half of them stood out from the rest in several respects. This was already visible during the interviews. This group of informants seemed to be much more engaged in the conversation and showed emotional involvement in the company's actions during the crisis. The interview itself flowed more smoothly and the interlocutors knew perfectly well how to answer the questions asked. What was surprising, although initially, the managers were reluctant to agree to the interview, after it ended they behaved like my good friends, for example, they told me about their private matters and showed me family photos. It seemed like they needed this conversation to share their emotions about their fight for survival

Since the above thread is more about psychology, the challenge was to determine how these companies differed from others in terms of management. The analysis showed that these companies not only introduced radical innovations at the company level but that these innovations were unique compared to other companies:

... we were surprised that very few firms have had similar ideas ... (I-10/p5),

...there appeared new products, which we are proud of because they have absolutely no equivalents on the international market (I-13/p6).

Even when the actions taken were theoretically identical, this distinction could be made because, for example, the sewing of a mask by a seamstress (I-1) is less outstanding than sewing masks by restaurant employees (I-6). The same applies to remote work, all schools worked

remotely, so for them, it was rather a new norm, but remote work in the case of the event company (I-12), cosmetology services (I-10), or speech therapy and neurology clinic (I-19) was already something special. The moment of initiating such activities was also important. Companies that were pioneers, even only among local competitors, should be assessed differently, than companies that started these activities much later (I-17).

5. Discussion

Research has shown that in a high-velocity environment, the emergence of dynamic capabilities can be observed. This applies to companies from various industries, including small and medium-sized ones, which previously had no motivation or need to develop these capabilities. This shows that viewing DCs solely from the perspective of routines (e.g. Winter, 2003) is a wrong approach.

Moreover, as a result of the threat, various types of DCs appeared in companies. The two groups of enterprises indicated in the previous chapter can be referred to the hierarchy of dynamic capabilities. Researchers agree that DCs have a hierarchical structure (Ambrosini, Bowman, Collier, 2009; Collis, 1994; Hine et al., 2014; Schilke, 2014b; Winter, 2003). DCs are divided into lower-order DCs (change-focused dynamic functional capabilities) and higher-order dynamic capabilities (HDCs), which are also called dynamic learning capabilities and contribute to creating new and radically innovative routines and resources (Hine et al., 2014). HDCs are defined in this study as the organization's ability to move beyond its current strategic orientation and utilize resources in unconventional outstanding ways. Therefore, it should be noted that outstanding companies demonstrated their HDCs (they are marked with a darker background in Table 1). Other companies also demonstrated the ability to adapt to changes in the business environment, but due to the nature of the innovations they introduced, they should be considered lower-order DCs.

According to Khurana, Dutta, and Ghura (2022), dynamic capabilities may emerge in a high-velocity environment. This study shows that these may be both lower- and higher-order capabilities.

The issue of organizational goals also deserves attention. Although the literature focuses mainly on the financial results of enterprises (Teece, 2007; Tseng, Lee, 2014; Wang, Senaratne, Rafiq, 2015) and on achieving competitive advantage (Teece, Pisano, 1994; Li, Liu, 2014; Schilke, 2014a), in a high-velocity environment these goals become secondary. It turns out that in an uncertain environment, during non-linear changes in the operating conditions of the organization, survival becomes the main goal. But an organization does not operate in a vacuum, so when a threat also affects its employees, customers, and society, it also aims to protect them.

6. Conclusion, limitation, and further research agenda

Environmental dynamism has a significant impact on the DCs of enterprises. When changes occur quickly and in a non-linear manner and companies feel threatened, the situation does not provide the opportunity to build DCs based on routines. Nevertheless, the DCs are also observed in such high-velocity environments, and their emergence refers to both lower- and higher-order DCs, not only big high-tech companies but also small and medium-sized enterprises from various industries. Companies then take radically innovative actions not to improve their results or gain a competitive advantage, but to survive and also take care of employees, customers, and society.

This study makes theoretical contributions by pointing out the importance of a non-routine approach to dynamic capabilities and exploring the phenomenon of DCs emergence in high-velocity environments. As a practical implication for managers, this study points out various possible paths for DCs' development, what can be used as an incentive for developing them. Managers can also use the examples discussed as guidance for future actions, especially in turbulent business environments.

The study has some limitations. Firstly, only Polish enterprises were studied, and therefore the results cannot be directly applied to other countries. Second, this is an exploratory study that requires follow-up to deepen the topic to enable future quantitative research.

Acknowledgements

This research was funded by National Science Centre, Poland [2021/41/N/HS4/02161].

References

1. Abubakar, A. (2020). Coronavirus (COVID-19): Effect and survival strategy for businesses. *Journal of Economics and Business*, Vol. 3, Iss. 2, pp. 661-671, doi: 10.31014/aior.1992.03.02.229.
2. Ambrosini, V., Bowman, C., Collier, N. (2009). Dynamic capabilities: An exploration of how firms renew their resource base. *British Journal of Management*, Vol. 20, Iss. 51, pp. 9-24, doi: 10.1111/j.1467-8551.2008.00610.x.
3. Andreeva, T., Ritala, P. (2016). What are the sources of capability dynamism? Reconceptualizing dynamic capabilities from the perspective of organizational change. *Baltic Journal of Management*, Vol. 11, pp. 238-259, doi: 10.1108/BJM-02-2015-0049.

4. Arend, R.J., Bromiley, P. (2009). Assessing the dynamic capabilities view: spare change, everyone? *Strategic Organization*, Vol. 7, Iss. 1, pp. 75–90, doi: 10.1177/1476127008100132.
5. Barreto, I. (2010). Dynamic Capabilities: A review of past research and an agenda for the future. *Journal of Management*, Vol. 36, Iss. 1, pp. 256–280, doi: 10.1177/0149206309350776.
6. Chi, H.R., Ho, H.P., Lin, P.K. (2022). Survival strategies of the sharing economy from the pandemic to a new normal: A dynamic capabilities approach. *Managerial and Decision Economics*, Vol. 43, Iss. 7, pp. 3219–3234, doi: 10.1002/mde.3592.
7. Collis, D.J. (1994). Research note: how valuable are organizational capabilities? *Strategic Management Journal*, Vol. 15, pp. 143–152, doi: 10.1002/smj.4250150910.
8. Eisenhardt, K.M., Martin, J.A. (2000). Dynamic capabilities: what are they? *Strategic Management Journal*, Vol. 21, Iss. 10/11, pp. 1105–1121, doi: 10.1002/1097-0266(200010/11)21:10/11<1105::AID-SMJ133>3.0.CO;2-E.
9. Etikan, I. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, Vol. 5, Iss. 1, pp. 1–4, doi: 10.11648/j.ajtas.20160501.11.
10. Fainshmidt, S., Wenger, L., Pezeshkan, A., Mallon, M.R. (2019). When do dynamic capabilities lead to competitive advantage? The importance of strategic fit. *Journal of Management Studies*, Vol. 56, Iss. 4, pp. 758–787, doi: 10.1111/joms.12415.
11. Falasca, M., Zhang, J., Conchar, M., Li, L. (2017). The impact of customer knowledge and marketing dynamic capability on innovation performance: an empirical analysis. *Journal of Business & Industrial Marketing*, Vol. 32, Iss. 7, pp. 901–912, doi: 10.1108/JBIM-12-2016-0289.
12. Hine, D., Parker, R., Pregelj, L., Verreynne, M. (2014). Deconstructing and reconstructing the capability hierarchy. *Industrial and Corporate Change*, Vol. 23, Iss. 5, pp. 1299–1325, doi: 10.1093/icc/dtt046.
13. Kaur, V. (2019). *Knowledge-Based Dynamic Capabilities: The Road Ahead in Gaining Organizational Competitiveness*. Springer.
14. Khurana, I., Dutta, D.K., Ghura, A.S. (2022). SMEs and digital transformation during a crisis: The emergence of resilience as a second-order dynamic capability in an entrepreneurial ecosystem. *Journal of Business Research*, Vol. 150, pp. 623–641, doi: 10.1016/j.jbusres.2022.06.048.
15. Kolbe, D., Calderon, H., Frasquet, M. (2022). Multichannel integration through innovation capability in manufacturing SMEs and its impact on performance. *Journal of Business & Industrial Marketing*, Vol. 37, Iss. 1, pp. 115–127, doi: 10.1108/jbim-04-2020-0204.
16. Li, D. Y., Liu, J. (2014). Dynamic capabilities, environmental dynamism, and competitive advantage: Evidence from China. *Journal of Business Research*, Vol. 67, Iss. 1, pp. 2793–2799, doi: 10.1016/j.jbusres.2012.08.007.

17. Li, L., Tong, Y., Wei, L., Yang, S. (2022). Digital technology-enabled dynamic capabilities and their impacts on firm performance: Evidence from the COVID-19 pandemic. *Information and Management*, Vol. 59, Iss. 8, 103689, doi: 10.1016/j.im.2022.103689.
18. Liu, C., Yang, J. (2021). How hotels adjust technology-based strategy to respond to COVID-19 and gain competitive productivity (CP): strategic management process and dynamic capabilities. *International Journal of Contemporary Hospitality Management*, Vol. 33, Iss. 9, pp. 2907-2931, doi: 10.1108/IJCHM-10-2020-1143.
19. McCarthy, I.P., Lawrence, T.B., Wixted, B., Gordon, B.R. (2010). A multidimensional conceptualization of environmental velocity. *The Academy of Management Review*, Vol. 35, Iss. 4, pp. 604-626, doi: 10.5465/AMR.2010.53503029.
20. Mitreğa, M. (2019). Dynamic marketing capability – refining the concept and applying it to company innovations. *Journal of Business & Industrial Marketing*, Vol. 35, Iss. 2, pp. 193-203, doi: 10.1108/JBIM-01-2019-0007.
21. Rahman, M.S., AbdelFattah, F.A., Bag, S., Gani, M.O. (2022). Survival strategies of SMEs amidst the COVID-19 pandemic: application of SEM and fsQCA. *Journal of Business and Industrial Marketing*, Vol. 37, Iss. 10, pp. 1990-2009, doi: 10.1108/JBIM-12-2020-0564.
22. Ritala, P., Heiman, B., Hurmelinna-Laukkanen, P. (2016). The need for speed—unfamiliar problems, capability rigidity, and ad hoc processes in organizations. *Industrial and Corporate Change*, Vol. 25, Iss. 5, pp. 757-777, doi: 10.1093/icc/dtw028.
23. Schilke, O. (2014a). On the contingent value of dynamic capabilities for competitive advantage: The nonlinear moderating effect of environmental dynamism. *Strategic Management Journal*, Vol. 35, Iss. 2, pp. 179-203, doi: 10.1002/smj.2099.
24. Schilke, O. (2014b). Second-order dynamic capabilities: How do they matter? *Academy of Management Perspectives*, Vol. 28, Iss. 4, pp. 368-380, doi: 10.5465/amp.2013.0093.
25. Schilke, O., Hu, S., Helfat, C.E. (2018). Quo Vadis, dynamic capabilities? A content-analytic review of the current state of knowledge and recommendations for future research. *Academy of Management Annals*, Vol. 12, Iss. 1, pp. 390-439, doi: 10.5465/annals.2016.0014.
26. Teece, D.J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (dustainable) enterprise performance. *Strategic Management Journal*, Vol. 28, pp. 1319-1350, doi: 10.1002/smj.640.
27. Teece, D.J. (2014). The foundations of enterprise performance: Dynamic and ordinary capabilities in an (economic) theory of firms. *Academy of Management Perspectives*, Vol. 28, Iss. 4, pp. 328-352, doi: 10.5465/amp.2013.0116.
28. Teece, D.J. (2023). Evolutionary economics, routines, and dynamic capabilities. In: K. Dopfer, R.R. Nelson, J. Potts, A. Pyka (Eds.), *Routledge Handbook of Evolutionary Economics*. Routledge, doi: 10.4324/9780429398971.
29. Teece, D.J., Pisano, G.P. (1994). The dynamic capabilities of firms: An introduction. *Industrial and Corporate Change*, Vol. 3, Iss. 3, pp. 537-556, doi: 10.1093/icc/3.3.537-a.

30. Teece, D.J., Pisano, G., Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, Vol. 18, Iss. 7, pp. 509-533, doi: 10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z.
31. Thoumrungroje, A., Racela, O.C. (2022). Linking SME international marketing agility to new technology adoption. *International Small Business Journal*, Vol. 40, Iss. 7, pp. 801-822, doi: 10.1177/0266242621105465.
32. Tseng, S., Lee, P. (2014). The effect of knowledge management capability and dynamic capability on organizational performance. *Journal of Enterprise Information Management*, Vol. 27, Iss. 2, pp. 158-179, doi: 10.1108/JEIM-05-2012-0025.
33. Verreyne, M.L., Hine, D., Coote, L., Parker, R. (2016). Building a scale for dynamic learning capabilities: The role of resources, learning, competitive intent and routine patterning. *Journal of Business Research*, Vol. 69, Iss. 10, pp. 4287-4303, doi: 10.1016/j.jbusres.2016.04.003.
34. Vogel, R., Güttel, W.H. (2012). The dynamic capability view in strategic management: A bibliometric review. *International Journal of Management Reviews*, Vol. 15, pp. 426-446, doi: 10.1111/ijmr.12000.
35. Wang, C.L., Senaratne, C., Rafiq, M. (2015). Success traps, dynamic capabilities and firm performance. *British Journal of Management*, Vol. 26, pp. 26-44, doi: 10.1111/1467-8551.12066.
36. 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*, Vol. 128, pp. 109-123, doi: 10.1016/j.jbusres.2021.02.009.
37. Wilhelm, H., Schlömer, M., Maurer, I. (2015). How dynamic capabilities affect the effectiveness and efficiency of operating routines under high and low levels of environmental dynamism. *British Journal of Management*, Vol. 26, pp. 327-345, doi: 10.1111/1467-8551.12085.
38. Winter, S.G. (2003). Understanding dynamic capabilities. *Strategic Management Journal*, Vol. 24, Iss. 10, pp. 991-995, doi: 10.1002/smj.318.
39. Ye, F., Ke, M., Ouyang, Y., Li, Y., Li, L., Zhan, Y., Zhang, M. (2023). Impact of digital technology usage on firm resilience: a dynamic capability perspective. *Supply Chain Management*, doi: 10.1108/SCM-12-2022-0480.
40. Zhang, J., Chen, Y., Li, Q., Li, Y. (2023). A review of dynamic capabilities evolution - based on organisational routines, entrepreneurship and improvisational capabilities perspectives, *Journal of Business Research*, Vol. 168, 114214, doi: 10.1016/j.jbusres.2023.114214.