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INSIGHTS FROM RESEARCH ON DYNAMIC CAPABILITIES IN POLISH ENTERPRISES

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Purpose: The primary aim of this paper is to analyze the differences in dynamic capabilities across high-growth enterprises (HGE) and those from IT sector. The conducted research will provide insights into how these enterprises integrate, transform, and manage their resources to foster growth and achieve market success.
Design/methodology/approach: The theoretical considerations in this study focus on the microfoundations of dynamic capabilities, specifically sensing, seizing, and reconfiguring. The theoretical assumptions were verified using quantitative methods. Empirical research was conducted on a sample of 502 enterprises from the HGE and IT sectors. To analyze differences between variables across enterprises, linear modeling (ANOVA) and Tukey's post hoc test were applied.
Findings: The empirical findings expand existing knowledge and highlight differences in the exploration of dynamic capabilities between HGE and IT enterprises. Notably, in each of the examined constructs (SEN, SEI, REF), enterprises in the HGE group consistently achieved higher average scores. However, despite these observed differences favoring HGE, the results are not sufficiently heterogeneous to suggest significant disparities in how HGE and IT enterprises respond to dynamic market challenges.
Research limitations/implications: The quantitative study focused on enterprises that operate in dynamic environments and are characterized by high innovation, flexibility, and agility. Future research should consider low-growth enterprises or SMEs to gain insights into their approach to dynamic capabilities.
Practical implications: The findings provide practical implications and recommendations for business leaders. For HGE and IT enterprises, these recommendations address identified gaps and shortcomings, while for other businesses, they offer valuable guidance for adapting to dynamic environments.
Originality/value: A key novelty of this study is its focus on dynamic capabilities at the microfoundational level. The results enhance our understanding of how enterprises act and react to maintain a competitive advantage in rapidly changing markets. They highlight both similarities and, more importantly, differences in how enterprises approach sensing, seizing, and reconfiguring their dynamic capabilities.
Keywords: sensing, seizing, reconfiguring, HGE, IT sector.
Category of the paper: Research paper.

1. Introduction

The concept of dynamic capabilities (DCs), rooted in the resource-based view, considers environmental changes and integrates organizational learning theory, emphasizing a firm's adaptive abilities. The literature highlights that the concept of dynamic capabilities supports competitive advantage (Wang, Ahmed, 2007), but this is not a sufficient condition (Eisenhardt, Martin, 2000). Both strategic renewal and dynamic capabilities play a key role in enabling enterprises to adapt to a rapidly changing, resource-rich environment (Fainshmidt et al., 2019). It is recognized that the concept of dynamic capabilities refers, on one hand, to the outcomes achieved, which translate into competitive advantage (also in the long term), and on the other hand, consists of many factors, with routines and managerial actions playing a key role (Stańczyk-Hugiet et al., 2016). Previous research confirms the existence of a relationship between dynamic capabilities, competitive advantage, business performance, and value (Dyduch et al., 2021; Fainshmidt et al., 2019; Girod, Whittington, 2017; Prester, 2023; Wilden et al., 2013). However, dynamic capabilities should also be viewed from the perspective of microfoundations, which allows for their identification as well as the relationships both between themselves and with the environment. These capabilities are based on microfoundations, representing distinct skills, processes, procedures, organizational structures, decision rules, and disciplines.

This article focuses on the microfoundations of dynamic capabilities according to the typology proposed by Teece (2007), highlighting their significance in two groups of enterprises: high-growth enterprises (HGE) and those in the IT sector. Both groups belong to enterprisess focused on growth in a dynamic environment and are characterized by high innovativeness, flexibility, and agility. Despite many similarities, there are differences between them, such as in their approach to responding to technological changes and strategic actions. It is worth emphasizing that the priority for HGEs is market expansion, while IT enterprises focus more on the development of their products or services' technologies. Frešer (2022) adds that rapidly growing firms—usually younger, innovative, and willing to take risks—can be more strategically agile and better able to respond to global changes. The most considered factors driving high growth in enterprises are human capital, human resource management, strategy, organizational capabilities, and innovation (Demir et al., 2017; Grabowska, Otola, 2022). According to a report prepared by McKinsey & Company (2022), HGEs invest 2.6 times more in intangible assets, which translates into a 6.7% higher revenue growth compared to low-growth firms. The growth imperative is driven by intangible assets such as: brand, innovation, organizational capabilities, ecosystems and partnerships, as well as digital technologies and analytics. The compilation of intangible resources is one of their success factors. IT enterprises are aware of the demand for ready-made technological services in various sectors of the economy. This leads them to focus on the development of their technologies and products,

which are mainly related to the skills and competencies of their employees. IT enterprises often seek technological niches, which also requires highly qualified yet narrowly specialized workers (Perspektywy rozwoju rynku IT w Polsce do 2030 roku).

The main objective of the article is to analyze the differences between the categories of dynamic capabilities in enterprises from the HGE group and the IT sector. The conducted research will evaluate how enterprises from the HGE group and the IT sector integrate, transform, and manage the resources they possess, contributing to their development and market success.

2. Theoretical background

The concept of dynamic capabilities was introduced to the literature in the second half of the 1990s. Initial research focused on definitional aspects, as well as the frameworks and conceptual models of DCs. Currently, empirical studies increasingly appear in the literature indicating the links between dynamic capabilities, value, business performance, and competitive advantage. However, it is important to agree with the view that although there is a consensus on the definition and the role that DCs play within a company (Kump et al., 2018), as a complex and somewhat abstract concept, they are difficult to identify. In this article, Table 1 presents the most frequently cited definitions of dynamic capabilities proposed by researchers who have popularized this topic.

Table 1.
Most frequently cited definitions of dynamic capabilities

Authors & Year	Definition
D.J. Teece, G. Pisano, A. Shuen, 1997	"The firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments"
K.M. Eisenhardt, J.A. Martin, 2000	"The firm's processes that use resources—specifically the processes to integrate, reconfigure, gain, and release resources—to match and even create market change. Dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die"
S.A. Zahra, H.J. Sapienza, P. Davidsson, 2006	"The abilities to reconfigure a firm's resources and routines in the manner envisioned and deemed appropriate by its principal decision-maker(s)"
D.J. Teece, 2007	"DCs consist of valuable and difficult-to-replicate organizational routines required to address a changing environment though sensing opportunities and threats, and reconfiguring resources to seize opportunities"
C.E. Helfat, S. Finkelstein, W. Mitchell, M.A. Peteraf, H. Singh, D.J. Teece, S.G. Winter, 2007	'The capacity of an organization to purposefully create, extend, or modify its resource base"

Cont. table 1.

I. Barreto, 2010	"A DC is 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"
R. Wilden, T.M. Devinney, G.R. Dowling, 2016	"Processes relating to sensing, seizing opportunities and reconfiguring the firm's resource bases to achieve organizational survival and growth"

Source: based on Teece et al., 1997; Eisenhardt, Martin, 2000; Zahra et al., 2006; Teece, 2007; Helfat et al., 2007; Barreto, 2010; Wilden et al., 2016.

The presented definitions suggest that DCs play a crucial role in a dynamically changing environment, enabling enterprises to adapt and modify a broad range of resources, competencies, and skills to survive in the market and foster growth. Kay (2010) emphasizes the key role of DCs in strategic management, highlighting the difficulties in predicting future market conditions where time and technological changes are significant. In contrast, Wang & Ahmed (2007) stress that dynamic capabilities are embedded in processes. The cited authors identify three main components of dynamic capabilities: adaptive capabilities, absorptive constructs and the factors influencing them. He proposed three categories within DCs: (1) sensing, (2) seizing, and (3) reconfiguring. Sixteen years later, Teece (2023) underscores that these are key actions that management should take to determine in which direction markets and technology are heading, and based on that, make decisions about the company's further development.

The first category, sensing, is related to the "understanding" of the organization's environment and identifying emerging opportunities. Thus, sensing involves two smaller components: to explore and to identify, which complement each other. To explore the environment of the organization means the process of scanning the external environment, gathering market information, and analyzing their trends (Dias, Lages, 2021; Kowalski et al., 2024). In turn, identify aims to explore the previously conducted scan. Monitoring the environment, including markets, industries, technologies, customers, suppliers, competitors, etc., should allow for detecting weak signals, which in turn shape the organization's development (Otola et al., 2024). In this context, it is essential to understand future technological and digital opportunities, the desires and needs of customers, and the actions of competitors (Dias et al., 2022; Furnival et al., 2019). Implementing 'explore and identify' allows for effectively detecting emerging market opportunities, as well as avoiding potential threats.

The second highlighted category, seizing, is associated with assessing the resources and capabilities the company possesses, as well as acquiring them (Fainshmidt et al., 2019; Wilden et al., 2013). According to Teece (2007, 2019), seizing means the ability to quickly respond to changing conditions by mobilizing resources, implementing innovations, and developing business models that will effectively transform an opportunity into real market value. This is similarly interpreted by Khan et al. (2020), who state that seizing involves mobilizing internal and external resources and capabilities to implement actions recommended by the identified opportunities that favor competitive advantage. The importance of flexibility and adaptive capabilities is emphasized, with a focus on the learning process.

The third category, reconfiguring, involves transforming and integrating resources and processes in a way that allows for maintaining a competitive advantage in the long term. According to Teece's view, resource reconfiguration is required for creating and capturing value. Researchers point out that reconfiguration involves greater complexity and may sometimes require a complete redesign of the business model (Breznik et al., 2019; Teece, 2007). The ability to reconfigure allows a company to continuously renew, adapt, and reorganize its resources and skills to effectively respond to dynamic changes in the business environment (Dias et al., 2022).

The complementarity of these three DCs categories enables the creation of value for the company and the maintenance of competitive advantage. The literature clearly emphasizes that the processes discussed above must be developed and applied simultaneously, as only their combined action can be a source of competitive advantage (Teece, 2019; Fainshmidt et al., 2019; Wilden et al., 2013). If a company identifies a market opportunity but fails to provide the necessary resources or take transformative actions in terms of its strategy or business model, it will only operate within the first category (sensing), which will not generate value. Conversely, developing resources and capabilities (seizing) without prior market verification may not lead to acquiring the proper resources necessary for further development.

3. Methodology

Empirical research on dynamic capabilities was conducted on a sample of 502 enterprises from two different groups in the years 2023-2024. The sample selection was purposive. The first group consisted of 252 high-growth enterprises (HGE), meeting the criteria of annual revenue or employment growth of over 20% on average over the past 3 years. The second group consisted of 250 enterprises from the IT sector. The sample included 76 small, 282 medium-sized, and 144 large enterprises. The survey questionnaire included 16 questions and addressed 3 constructs of dynamic capabilities: sensing (SEN), seizing (SEI), and reconfiguring (REF). All questions were based on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The sensing category included five questions, which focused on identifying and exploiting new market opportunities through analyzing customer needs and studying market trends. Additionally, the questions addressed research and development activities aimed at both generating new knowledge and technologies to support products or processes development. In contrasts, the seizing category (six questions) focused on searching for and securing appropriate resources—both tangible and intangible, such as knowledge and skills—necessary for effectively implementing the previously identified opportunities. The role of strategic partners in these activities was also considered. The last category, reconfiguring, included five questions that examined the degree of modifications in technologies, processes,

and management methods, as well as building valuable business relationships and developing employee competencies.

To examine the differences between the variables in the high- growth enterprises and those from the IT sector, a linear modeling method—ANOVA—was applied. Using the ANOVA test, the mean values of the dynamic capabilities' variables were compared for the entire group of dynamic capabilities and for each construct, i.e., SEN, SEI, and REF. In the next step, a post-hoc Tukey's test was conducted. Comparable samples were independent. For research purposes, the following main hypothesis was formulated:

H0: There is no statistically significant difference in the mean dynamic capabilities between enterprises in the HGE group and enterprises in the IT sector.

Additionally, due to the identification of three constructs of dynamic capabilities—SEN, SEI, and REF—the existence of relationships between these constructs in both groups of enterprises were examined.

H0a: There is no statistically significant difference in the mean SEN between enterprises in the HGE group and enterprises in the IT sector.

H0b: There is no statistically significant difference in the mean SEI between enterprises in the HGE group and enterprises in the IT sector.

H0c: There is no statistically significant difference in the mean REF between enterprises in the HGE group and enterprises in the IT sector.

4. Results and Fundings

The study examined whether there are statistically significant differences between the variable groups SEN, SEI, and REF depending on whether a company belongs to the HGE or IT sector. The research results are presented in tables and graphs.

Table 2.
Results of ANOVA Analysis

Construct	Wilks' Lambda	F-test	Effect df	Error df	p
SEN	0.927535	7.750	5	496	0.000000
SEI	0.923977	6.788	6	495	0.000001
REF	0.911587	9.621	5	496	0.000000
Total (SEN, SEI, REF)	0.881986	4.0560	16	485	0.000000

Note: p – p-value.

Source: own elaboration.

The fundings indicate that the null hypotheses should be rejected in favor of the alternative hypotheses. The conducted analyses demonstrate statistically significant differences in dynamic capabilities based on the constructs SEN, SEI, and REF, depending on whether an enterprise belongs to the HGE or IT sector. This is confirmed by the values of Wilks' Lambda, the F-test,

and significance levels ($p < 0.001$). However, given that Wilks' Lambda values fall within the 0-1 range, where lower values indicate greater group differences, the results suggest that while the samples are not homogeneous, the degree of variation is not large. The overall analysis of the three constructs indicates a moderate level of variation between the two groups, while individual variance analyses for each construct suggest relatively small differences between the groups.

Since the ANOVA F-values were statistically significant, a post-hoc test was conducted. Post-hoc Tukey's test was used to compare the individual variables within each of the three constructs. The results revealed significant differences in 15 out of 16 examined variables. Detailed results are presented in Table 3.

Table 3.
Results of post-hoc Tukey's Test

Variable	p	Error: MS between groups	Variable	p	Error: MS between groups	Variable	p	Error: MS between groups
SEN1	**0.128173**	1.0593	SEI1	0.001239	1.1544	REF1	0.000014	1.0903
SEN2	0.000228	0.94167	SEI2	0.003152	1.1642	REF2	0.000009	1.0022
SEN3	0.000758	1.0179	SEI3	0.000143	1.1488	REF3	0.000023	1.1215
SEN4	0.000009	1.2038	SEI4	0.000009	1.0986	REF4	0.000009	1.0236
SEN5	0.000009	1.113	SEI5	0.000009	1.0994	REF5	0.000012	1.0955
			SEI6	0.003220	1.3155			

Note: p – p-value.

Source: Own elaboration.

The only variable where no statistically significant difference was observed was SEN1 ($p = 0.128173$), meaning that there are no significant discrepancies in identifying customer needs between enterprises in the HGE and IT groups. Therefore, variable SEN1 will not be discussed in further research. For all other variables, the differences are statistically significant, indicating differentiation between enterprises in the HGE group and the IT sector. The graphs illustrate differences in mean scores across the SEN, SEI, and REF constructs based on enterprise group affiliation.

The conducted empirical research allows for the following conclusions:

- There are statistically significant differences in dynamic capabilities between high-growth enterprises (HGE) and enterprises in the IT sector.
- There are statistically significant differences in the ability to detect market trends and changes, as well as in research and development activities, between enterprises in the HGE group and those in the IT sector.
- There are statistically significant differences in the ability to modify strategies and acquire resources between enterprises in the HGE group and those in the IT sector.
- There are statistically significant differences in the ability to modify technologies, processes, and management methods, as well as in the development of employees' competencies, between enterprises in the HGE group and those in the IT sector.

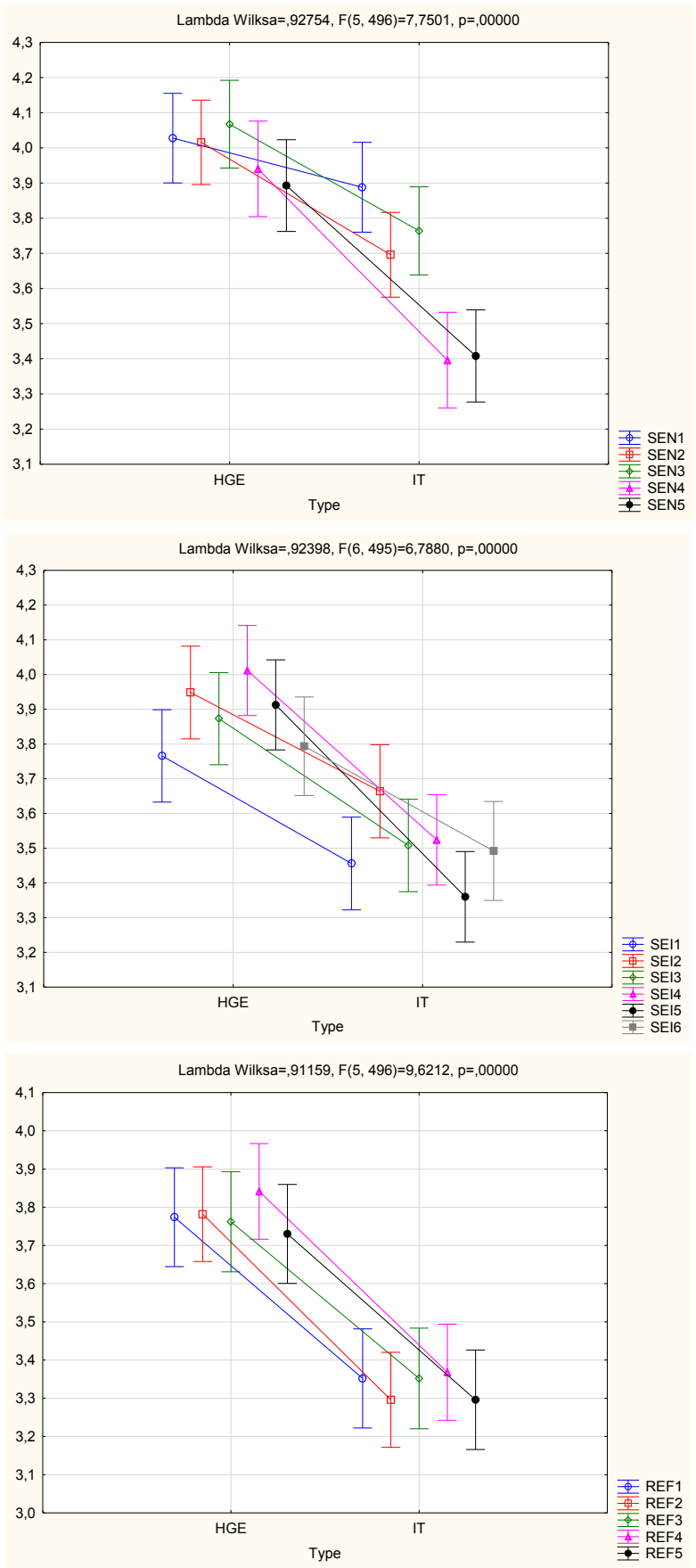

Figure 1. Mean scores across the SEN, SEI, and REF for HGE and IT enterprises.

Source: own elaboration.

Enterprises belonging to the HGE group demonstrate greater capabilities in detecting changes (SEN), seizing market opportunities (SEI), and reorganizing resources (REF) compared to enterprises in the IT sector. For each examined variable, the HGE group has a higher mean score. When analyzing the SEN construct, the largest differences among the examined variables appear in SEN4 (M = 3.94 for HGE and M = 3.39 for IT) and SEN5 (M = 3.89 for HGE and M = 3.40 for IT). Both factors are related to research and development activities aimed at generating new knowledge and testing new ideas. The analysis of the SEI construct indicates that the most significant disparities in mean values are observed for SEI5 (M = 3.91 for HGE and M = 3.36 for IT) and SEI4 (M = 4.01 for HGE and M = 3.52 for IT). The SEI5 variable is associated with acquiring human resources necessary for implementing newly identified opportunities, while the SEI4 variable is related to obtaining knowledge or skills for the same purpose. In the final construct, REF, the largest differences in mean values are observed for REF2 (M = 3.78 for HGE and M = 3.29 for IT) and REF4 (M = 3.84 for HGE and M = 3.36 for IT). REF2 corresponds to the introduction of new solutions or significant modifications to existing technologies/processes to implement newly identified opportunities. Meanwhile, REF4 pertains to changes in management methods within the company.

5. Limitations and Future Research

The conducted research is not without limitations. Although High-Growth Enterprises operate under similar guidelines worldwide, the data analyzed in this study—relating to both HGEs and companies from the IT sector—comes from a single country. Additionally, potential biases related to respondent self-reporting must be acknowledged, as they may affect the objectivity and reliability of the collected data.

An interesting direction for future research could involve comparative studies between HGEs and companies from less dominant industries, helping to identify which components of dynamic capabilities are the least developed. It would also be valuable to extend the research to economies at different stages of development (both emerging and highly developed) in order to better highlight existing disparities and identify research gaps. Longitudinal studies would certainly be justified, as they could track how individual components of dynamic capabilities evolve over time. Such studies could also offer valuable insights in the context of the increasing digitalization of enterprises, which significantly affects internal business processes.

6. Conclusions

Dynamic capabilities indicate a firm's ability to adapt and grow in an evolving market environment. Analyzing DCs provides insights into how well enterprises navigate situations requiring flexibility and rapid responses to change. The empirical findings expand our understanding and highlight differences in how HGE and IT enterprises leverage dynamic capabilities.

In each of the examined constructs (SEN, SEI, REF), higher mean scores were observed among enterprises in the HGE group. However, despite the observed differences favoring HGE, it is important to note that the results are not heterogeneous enough to suggest significant discrepancies in how HGE and IT enterprises handle dynamic market challenges. Overall, these differences can be classified as moderate, with both groups demonstrating similar approaches to leveraging opportunities and adapting to changing conditions.

In conclusion, the study results suggest that HGE enterprises are more advanced in utilizing dynamic capabilities, which may be attributed to their greater emphasis on innovation, research and development, and management flexibility. While IT enterprises also demonstrate adaptability, they focus more on incremental technological modifications and internal knowledge development rather than radical changes. Instead of large-scale transformations, they tend to make smaller adjustments to existing technologies and rely on internal human capital by enhancing their employees' competencies and knowledge.

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