

INTERNAL DIGITAL CAPABILITIES AND MARKET PRESENCE AN EMPIRICAL ASSESSMENT OF HUNGARIAN SMES

Krisztián Várföldi 

PhD student, University of Miskolc,

3515 Miskolc-Egyetemváros, e-mail: varfoldi.krisztian@student.uni-miskolc.hu

Abstract

Organizational capabilities have become a critical factor in determining how small and medium-sized enterprises (SMEs) adapt to rapidly changing business environments and leverage digital technologies for competitive advantage. Drawing upon organizational capability and dynamic capability perspectives, this study examines the relationship between internal digital capabilities and market presence among Hungarian SMEs. Empirical data were collected through a questionnaire survey involving 75 SMEs operating in production-oriented and service-oriented sectors. Two composite indices were developed: the Internal Digital Capability Index (IDCI) and the Market Presence Index (MPI). The results indicate relatively favourable levels of internal digital capabilities, particularly regarding digital competencies and organizational adaptability. Market presence was strongest in dimensions related to customer interaction and reputation, while online visibility and digital customer acquisition showed lower levels of development. Correlation analysis revealed a moderately strong positive relationship between internal digital capabilities and market presence ($r = 0.607$). The findings suggest that organizational digital capabilities represent an important factor supporting market-related outcomes and emphasize the importance of capability development as a foundation for the successful digital transformation of SMEs.

Keywords: internal digital capabilities, market presence, digital transformation, SMEs, dynamic capabilities

1. Introduction

Contemporary business environments are characterized by accelerating technological change, increasing uncertainty, and continuously shortening planning horizons. Under such conditions, sustainable value creation increasingly depends on the ability of firms to adapt, renew, and effectively utilize their resources. Consequently, management research has gradually shifted its attention from resource ownership toward organizational capabilities that support learning, adaptation, and long-term competitiveness (Chikán, 2008; Leonard-Barton, 1992; Stalk et al., 1992).

The importance of organizational capabilities is emphasized by the Dynamic Capabilities Theory, which highlights the ability of firms to sense environmental changes, seize emerging opportunities and transform their resource base when necessary (Teece et al., 1997; Teece, 2007). Similarly, the concept of organizational ambidexterity suggests that successful organizations must simultaneously exploit existing capabilities while exploring new opportunities for future development (March, 1991; O'Reilly & Tushman, 2013). These perspectives are particularly relevant in the context of digital transformation, where technological investments alone rarely generate business value without appropriate organizational conditions and capabilities (Warner & Wäger, 2019; Verhoef et al., 2021).

This challenge is especially significant for small and medium-sized enterprises (SMEs), which frequently operate with limited resources but often possess greater flexibility and adaptability than larger organizations. In Hungary, SMEs represent the dominant segment of the economy; therefore, understanding the organizational factors that support successful digital adaptation has both academic and practical relevance. While previous studies have primarily examined the relationship between digitalization and business performance, innovation, or competitiveness, considerably less attention has been devoted to market presence as a distinct organizational outcome.

Market presence refers to the extent to which a company is visible, accessible, and recognizable within its business environment and how effectively it interacts with customers and business partners. Building upon the organizational perspective, this study investigates the relationship between internal digital capabilities and market presence among Hungarian SMEs. The objective is to assess the level of these capabilities, evaluate the characteristics of market presence and explore the relationship between the two constructs across different sectoral groups.

2. Literature review and methods

The capability-based view of the firm suggests that sustainable organizational success depends not only on the possession of resources but also on the ability to deploy, integrate and continuously renew them in response to changing environmental conditions (Leonard-Barton, 1992; Grant, 1996). From this perspective, organizational capabilities represent complex combinations of knowledge, routines and managerial processes that enable firms to coordinate activities and create value.

This approach was further developed by the Dynamic Capabilities Theory, which emphasizes the ability of organizations to sense opportunities, seize emerging possibilities and transform their existing resource base when necessary (Teece et al., 1997; Teece, 2007). Dynamic capabilities become particularly important in turbulent environments where technological developments, customer expectations and competitive conditions evolve rapidly. Consequently, firms must continuously adapt their organizational structures, processes and competencies to maintain their market position.

The concept of organizational ambidexterity complements this perspective by highlighting the simultaneous need for exploitation and exploration activities. While exploitation focuses on improving existing routines and increasing operational efficiency, exploration supports innovation, experimentation, and organizational renewal (March, 1991; O'Reilly & Tushman, 2013). The balance between these activities is increasingly regarded as a prerequisite for sustainable value creation in digitally transforming business environments.

2.1. Internal Digital Capabilities

The growing importance of digital transformation has shifted attention toward organizational capabilities that support the effective utilization of digital technologies. Recent studies indicate that technological investments alone rarely generate business value unless they are accompanied by appropriate organizational competencies and managerial practices (Warner & Wäger, 2019; Verhoef et al., 2021).

Building on the organizational capability perspective, internal digital capabilities can be interpreted as a set of organizational attributes that enable firms to integrate digital technologies into their daily operations and strategic activities. In the present study, internal digital capabilities are conceptualized through five interconnected dimensions: digital competencies, adaptability to technological change, organizational flexibility, innovation capability and data-driven decision-making. Together, these

dimensions reflect the organization's ability to transform digital resources into operational and market-related outcomes.

The Figure 1 illustrates the conceptual structure of internal digital capabilities and their expected contribution to market presence.

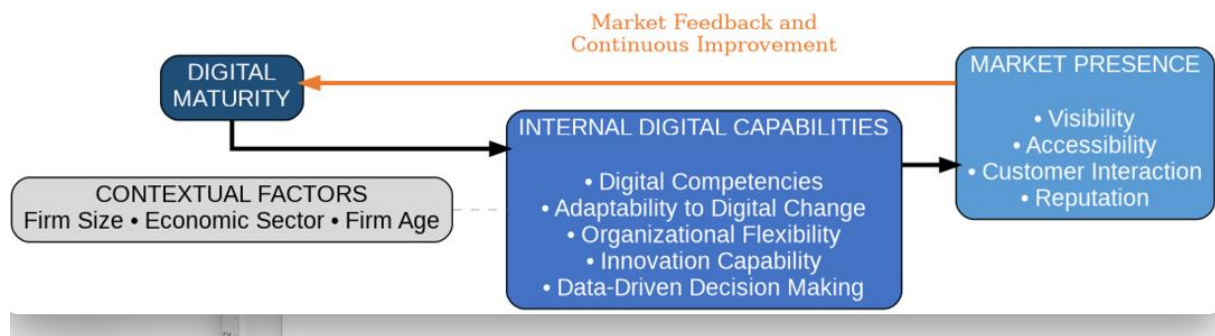


Figure 1. Conceptual structure of internal digital capabilities

2.2. Market presence

While previous digitalization studies have predominantly focused on financial performance, competitiveness or innovation outcomes, market presence has received comparatively limited attention.

Market presence refers to the extent to which a company is visible, accessible, and recognizable within its business environment and how effectively it interacts with customers and business partners. In the digital era, market presence extends beyond traditional market visibility and includes various online and offline dimensions of stakeholder interaction. Based on previous marketing and digital business research, the construct may be interpreted through four main dimensions: visibility, accessibility, customer interaction and reputation.

These dimensions collectively reflect how effectively a firm communicates with the market and maintains relationships with relevant stakeholders.

2.3. Framework and Hypotheses

Based on the theoretical considerations presented above, internal digital capabilities are expected to contribute positively to market presence. Organizations possessing stronger digital competencies, higher adaptability and more advanced innovation capabilities are assumed to communicate more effectively with customers, achieve greater visibility and maintain stronger market relationships.

Furthermore, previous studies suggest that sectoral characteristics may influence both the development of organizational capabilities and the utilization of digital technologies. Consequently, differences may emerge between production-oriented and service-oriented SMEs regarding both internal digital capabilities and market presence.

Accordingly, the following hypotheses are proposed:

H1: Internal digital capabilities are positively associated with market presence.

H2: The level of internal digital capabilities differs across sectoral groups.

H3: The level of market presence differs across sectoral groups.

3. Data and methods

The study employed a quantitative cross-sectional survey design to examine the relationship between internal digital capabilities and market presence among Hungarian small and medium-sized enterprises (SMEs). The research followed a descriptive and explanatory approach, aiming to assess the level of internal digital capabilities and market presence and to explore the relationship between these constructs across different sectoral groups.

Data were collected through an online questionnaire developed based on the conceptual framework presented in the previous section. The questionnaire consisted primarily of closed-ended questions measured on five-point Likert scales ranging from 1 (“strongly disagree”) to 5 (“strongly agree”).

The empirical survey was conducted among Hungarian SMEs operating in various economic sectors. A total of 75 valid responses were collected and included in the analysis. The sample contained micro, small and medium-sized enterprises representing both production-oriented and service-oriented sectors.

For comparative purposes, firms were classified into two broad sectoral groups. The production sector included enterprises operating in manufacturing, agriculture, and construction, while the service sector comprised firms engaged primarily in commercial and service-related activities. This classification enabled the examination of potential sectoral differences in internal digital capabilities and market presence.

The study focused on two composite constructs: Internal Digital Capabilities (IDC) and Market Presence (MP).

Internal Digital Capabilities were measured through nine questionnaire items reflecting digital competencies, adaptability to digital change, organizational flexibility, innovation capability and data-driven decision-making. Market Presence was measured through sixteen items capturing various aspects of visibility, accessibility, customer interaction and reputation. The measurement framework applied in the study is summarized in Table 1.

Table 1. Sample profile of the surveyed SMEs

Construct	Dimension	Items
Internal Digital Capabilities	Digital Competencies	IDC1–IDC2
	Adaptability to Digital Change	IDC3–IDC4
	Organizational Flexibility	IDC5–IDC6
	Innovation Capability	IDC7–IDC8
	Data-Driven Decision Making	IDC9
Market Presence	Online Visibility	MP1–MP4
	Customer Interaction	MP5–MP8
	Offline Position and Reputation	MP9–MP12
	Market Reach and Growth	MP13–MP16

3.1. Index construction

To facilitate interpretation and comparison, composite indices were calculated for both constructs. The Internal Digital Capability Index (IDCI) was computed as the arithmetic mean of the nine IDC-related items (1):

$$IDCI = \frac{\sum_{i=1}^n IDC_i}{n} \quad (1)$$

where IDC_i denotes the individual item scores, and n represents the number of items included in the construct.

Similarly, the Market Presence Index (MPI) was calculated as the arithmetic mean of the sixteen market presence indicators (2):

$$MPI = \frac{\sum_{j=1}^m MP_j}{m} \quad (2)$$

where MP_j denotes the individual market presence items and m represents the number of indicators included in the construct.

The use of composite indices allows the aggregation of multiple dimensions into interpretable measures while preserving the relative differences among respondents.

To evaluate the internal consistency of the measurement scales, reliability analysis was performed using Cronbach's alpha coefficients. Reliability assessment is widely used in survey-based research to determine whether individual items consistently measure the same underlying construct.

Table 2. Reliability Statistic of the survey

Construct	Number of Items	Cronbach's Alpha
Internal Digital Capabilities (IDC)	9	0.957
Market Presence (MP)	16	0.949

Table 2 presents the reliability statistics of the measurement scales applied in the study. The Internal Digital Capabilities construct achieved a Cronbach's alpha value of 0.957, while the Market Presence construct reached 0.949. Both coefficients substantially exceed the commonly accepted threshold of 0.70, indicating excellent internal consistency and suggesting that the items reliably measure the underlying constructs. The results confirm the suitability of the measurement framework for subsequent index construction and statistical analysis.

Data analysis was conducted in four consecutive stages. First, descriptive statistical methods were applied to examine the distribution and average values of the investigated variables. Second, composite indices were calculated for Internal Digital Capabilities and Market Presence. Third, comparative analyses were performed to identify potential differences between production-oriented and service-oriented enterprises. Finally, correlation analysis was applied to examine the relationship between the Internal Digital Capability Index and the Market Presence Index.

These procedures enabled the empirical evaluation of the proposed hypotheses and provided insights into the role of internal digital capabilities in shaping market presence among Hungarian SMEs.

4. Results

The final sample consisted of 75 Hungarian SMEs representing a diverse range of economic activities. The surveyed firms included micro, small and medium-sized enterprises operating in both production-oriented and service-oriented sectors. For analytical purposes, firms were grouped into two broad categories: production enterprises, including manufacturing, agriculture and construction firms, and service enterprises, including commercial and service-related businesses.

As shown in Table 3 the sample reflects the heterogeneous structure of the Hungarian SME sector. Service-oriented firms accounted for most respondents, while production-oriented enterprises represented a substantial proportion of the sample. The distribution of firm sizes indicates the dominance of micro and small enterprises, which is consistent with the overall composition of the Hungarian SME population.

The diversity of the sample provides an appropriate basis for examining variations in internal digital capabilities and market presence across different organizational and sectoral contexts.

Table 3. Sample profile of the surveyed SMEs

Firm size	N (%)	Sector group	N (%)
Micro (1–9 employees)	41 (54.7)	Production sector*	28 (37.3)
Small (10–49 employees)	20 (26.7)	Service sector**	47 (62.7)
Medium (50–249 employees)	14 (18.6)		
Total	75 (100.0)	Total	75 (100.0)

Note: Production sector includes agricultural, manufacturing and construction firms.

4.1. Scores of internal digital capabilities

The descriptive analysis of internal digital capabilities revealed generally favourable results among the surveyed Hungarian SMEs. As shown in Figure 2, the average scores of all investigated dimensions exceeded the midpoint of the five-point scale, indicating a relatively developed level of internal digital capabilities within the sample.

The highest mean value was observed for digital competencies (4.00), suggesting that respondents generally perceived their employees and managers as possessing the knowledge and skills necessary to utilize digital technologies effectively. Relatively high scores were also recorded for adaptability (3.88) and organizational flexibility (3.87), indicating that many firms can respond to technological and environmental changes in a timely manner.

Moderately high values were identified for process integration (3.81), operational contribution (3.79) and innovation support (3.67). These findings suggest that digital technologies are not only present within organizations but are increasingly embedded into operational and managerial processes. However, the results also indicate that the business benefits of digitalization are not always fully realized through innovation-oriented activities.

The lowest scores were observed for openness to digital initiatives (3.65), environmental adaptation (3.52) and particularly data-driven decision-making (3.36). Although these dimensions still exceeded the neutral midpoint, they indicate areas where further development may be required. The comparatively lower value of data-driven decision-making suggests that many SMEs have not yet fully integrated data analytics into their managerial and strategic processes.

Overall, the results indicate that the surveyed firms possess relatively strong internal digital capabilities, particularly in terms of digital competencies and organizational adaptability. At the same time, the findings highlight the importance of strengthening analytical and data-driven management practices to support future digital development.

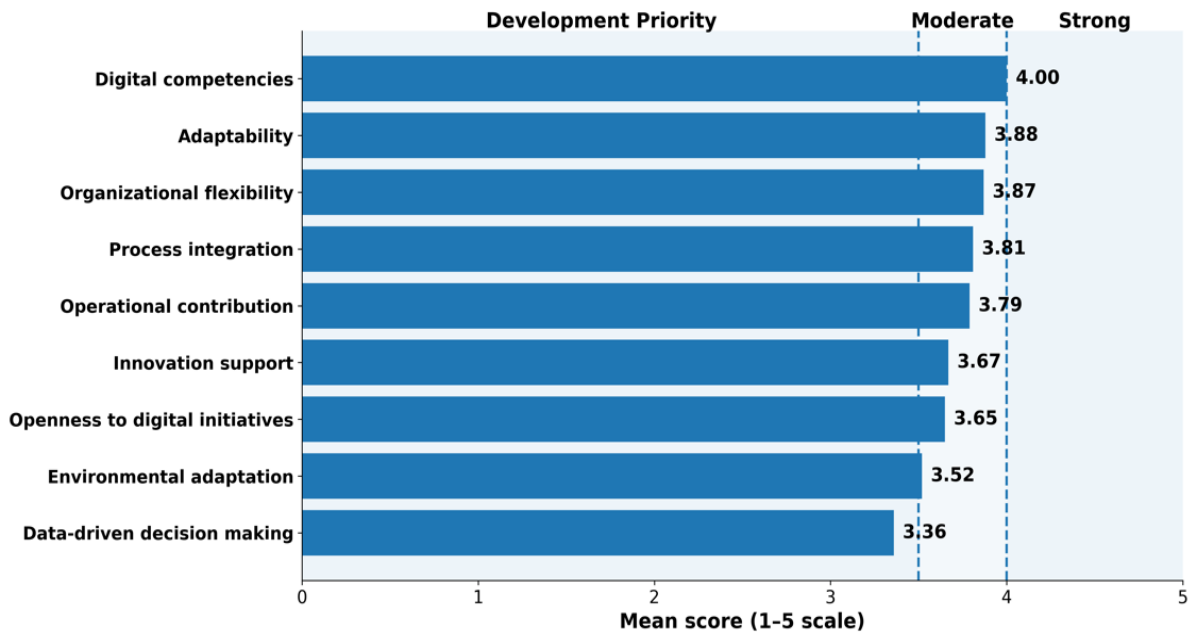


Figure 2. Average scores of internal digital capabilities dimensions

4.2. Scores of MPI

The analysis of market presence revealed a generally positive picture among the surveyed SMEs, although notable differences emerged across the individual dimensions of the construct.

As illustrated in Figure 3 below, the strongest results were observed in the dimensions related to customer interaction and offline market position, while online visibility and market expansion exhibited comparatively lower scores.

The highest dimension-level averages were recorded for **Offline Position and Reputation** (3.76) and **Customer Interaction** (3.72). Within these dimensions, particularly strong results were observed for **partner network** (4.11), **stable customer base** (4.00), **response speed** (3.96) and **customer recommendations** (3.83). These findings suggest that many SMEs have established stable market relationships and maintain effective interactions with customers and business partners.

The dimension of **Online Visibility** achieved a lower average score (3.01), representing the least developed area of market presence. While firms reported moderate levels of online reputation (3.11) and online activity growth (3.07), substantially lower values were observed for online customer acquisition (2.59). This result indicates that although digital communication channels are increasingly present within SMEs, their effectiveness in generating new customer relationships remains limited.

Similarly, the dimension of **Market Reach and Growth** demonstrated a moderate level of development (3.19). Respondents reported relatively favourable results regarding market expansion (3.44), whereas geographical reach (3.09), digital contribution to customer acquisition (3.16) and visibility compared with competitors (3.08) received lower evaluations. These findings suggest that the transformation of digital initiatives into broader market expansion remains a challenge for many SMEs.



Figure 3. Average scores of internal digital capabilities dimensions

Overall, the results indicate that the surveyed enterprises perform more strongly in maintaining existing customer relationships and market reputation than in expanding their digital visibility and market reach. This pattern supports the assumption that organizational and relational capabilities may develop more rapidly than the market-related benefits derived from digital transformation.

4.3. Sectoral comparison and relationship analysis

To examine potential sectoral differences, the surveyed firms were grouped into production-oriented and service-oriented enterprises.

The production group included firms operating in agriculture, manufacturing, and construction, while the service group consisted of commercial and service-related businesses.

Figure 4 presents the average values of the Internal Digital Capability Index (IDCI) and the Market Presence Index (MPI) across the two sectoral groups. The results indicate only minor differences in internal digital capabilities between production-oriented and service-oriented firms. The average IDCI value reached **3.69** among production enterprises and **3.75** among service enterprises, suggesting a relatively similar level of internal digital capability development across sectors.

More pronounced differences were observed in the case of market presence. Production-oriented firms achieved an average MPI value of **3.18**, whereas service-oriented enterprises reached **3.56**. This finding suggests that service firms are generally more visible, accessible, and active in maintaining customer interactions than production-oriented enterprises. The result may reflect the stronger customer-facing nature of service activities and the greater importance of communication and relationship management in service-based business models.

To evaluate the relationship between the two main constructs, a correlation analysis was performed between the Internal Digital Capability Index and the Market Presence Index. The results revealed a positive correlation ($r = 0.607$), indicating a moderately strong association between internal digital capabilities and market presence.

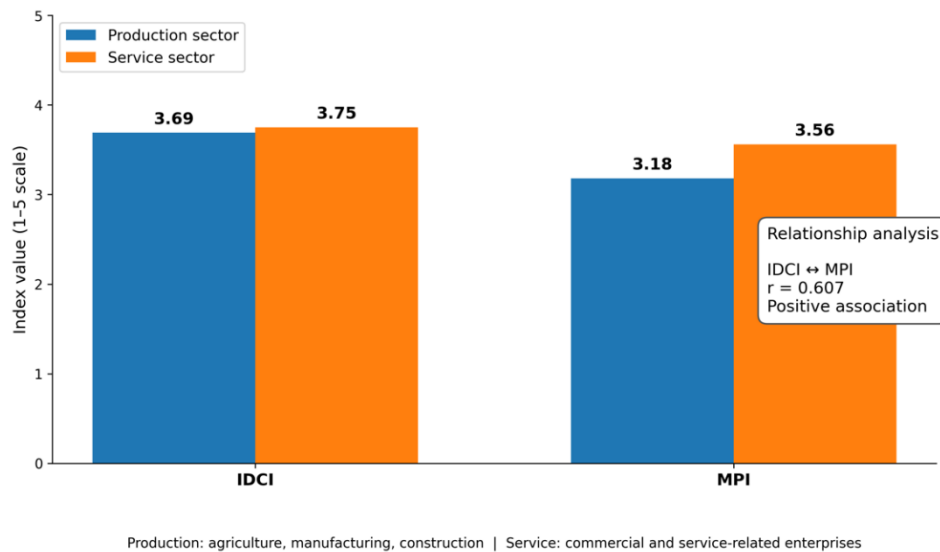


Figure 4. The average values of the Internal Digital Capability Index (IDCI) and the Market Presence Index (MPI) across the two sectoral groups

The observed relationship supports the assumption that firms possessing stronger digital competencies, greater adaptability and more advanced data-driven practices tend to exhibit higher levels of market visibility, customer interaction and reputation. Consequently, the findings provide empirical support for **H1**, which proposed a positive association between internal digital capabilities and market presence.

While the differences between sectoral groups were less substantial in terms of internal digital capabilities, the higher market presence observed among service-oriented firms provides partial support for **H2** and **H3**.

Overall, the results suggest that internal digital capabilities represent an important organizational factor contributing to market-related outcomes regardless of sectoral affiliation.

5. Discussion

The findings of the study support the growing body of literature emphasizing the importance of organizational capabilities in the successful utilization of digital technologies. Consistent with the Dynamic Capabilities Theory (Teece et al., 1997; Teece, 2007), the results indicate that digital technologies create business value primarily when they are accompanied by organizational competencies, adaptability and learning capabilities.

The relatively high scores observed for digital competencies and organizational adaptability suggest that Hungarian SMEs have made considerable progress in developing internal digital capabilities. However, the lower scores associated with data-driven decision-making indicate that the integration of analytical and evidence-based managerial practices remains a challenge for many firms. This finding is consistent with previous studies emphasizing that technological adoption often develops faster than the organizational routines required to exploit digital data effectively (Warner & Wäger, 2019; Verhoef et al., 2021).

The analysis of market presence revealed a similar pattern. While the surveyed firms demonstrated strong customer relationships and established market reputations, online visibility and digitally supported customer acquisition remained less developed. This suggests that organizational and relational capabilities may evolve more rapidly than the market-related benefits derived from digital transformation.

The positive correlation identified between internal digital capabilities and market presence ($r = 0.607$) provides empirical support for the assumption that firms possessing stronger digital capabilities tend to achieve greater visibility, accessibility, and customer engagement. Although service-oriented enterprises exhibited somewhat higher levels of market presence, the results indicate that the importance of internal digital capabilities extends across different sectoral contexts.

The findings contribute to the literature by extending the discussion of digital transformation beyond technological adoption and emphasizing the role of internal organizational capabilities in shaping market-related outcomes among SMEs.

6. Conclusion

This study examined the relationship between internal digital capabilities and market presence among Hungarian SMEs. Building on organizational capability and dynamic capability perspectives, the research introduced a multidimensional framework linking digital competencies, adaptability, organizational flexibility, innovation capability and data-driven decision-making to market-related outcomes.

The empirical results revealed relatively favourable levels of internal digital capabilities among the surveyed firms, particularly in the areas of digital competencies and organizational adaptability. At the same time, lower scores associated with data-driven decision-making suggest opportunities for further organizational development. Market presence was strongest in dimensions related to customer interaction and reputation, whereas online visibility and digital customer acquisition remained comparatively weaker.

The observed positive relationship between the Internal Digital Capability Index and the Market Presence Index highlights the strategic importance of organizational digital capabilities in supporting market-related outcomes. Consequently, the findings suggest that digital transformation should be interpreted not only as a technological process but also as an organizational capability-building activity.

Despite the relatively limited sample size, the study contributes to the understanding of how internal digital capabilities support market presence among SMEs and provides a foundation for future research involving larger samples, longitudinal analyses and more advanced causal modelling techniques.

References

- [1] Argyris, C., & Schön, D. A. (1978). *Organizational learning: A theory of action perspective*. Reading, MA: Addison-Wesley.
- [2] Chikán, A. (2008). *Vállalatgazdaságtan* (3rd ed.). Budapest: Aula Kiadó.
- [3] Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, 21 (10–11), 1105–1121.
[https://doi.org/10.1002/1097-0266\(200010/11\)21:10/11<1105::AID-SMJ133>3.0.CO;2-E](https://doi.org/10.1002/1097-0266(200010/11)21:10/11<1105::AID-SMJ133>3.0.CO;2-E)
- [4] Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal*, 17 (Winter Special Issue), 109–122. <https://doi.org/10.1002/smj.4250171110>
- [5] Leonard-Barton, D. (1992). Core capabilities and core rigidities: A paradox in managing new product development. *Strategic Management Journal*, 13 (S1), 111–125.
<https://doi.org/10.1002/smj.4250131009>

- [6] March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2 (1), 71–87. <https://doi.org/10.1287/orsc.2.1.71>
- [7] Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company*. Oxford University Press. <https://doi.org/10.1093/oso/9780195092691.001.0001>
- [8] O'Reilly, C. A., & Tushman, M. L. (2013). Organizational ambidexterity: Past, present and future. *Academy of Management Perspectives*, 27 (4), 324–338. <https://doi.org/10.5465/amp.2013.0025>
- [9] Stalk, G., Evans, P., & Shulman, L. E. (1992). Competing on capabilities: The new rules of corporate strategy. *Harvard Business Review*, 70 (2), 57–69.
- [10] Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18 (7), 509–533. [https://doi.org/10.1002/\(SICI\)1097-0266\(199708\)18:7<509::AID-SMJ882>3.0.CO;2-Z](https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z)
- [11] Veresné Somosi, M. (2015). *Tudásmenedzsment és szervezeti tanulás*. Miskolci Egyetemi Kiadó.
- [12] Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, 122, 889–901. <https://doi.org/10.1016/j.jbusres.2019.09.022>
- [13] Warner, K. S. R., & Wäger, M. (2019). Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning*, 52 (3). <https://doi.org/10.1016/j.lrp.2018.12.001>
- [14] Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28 (2), 118–144. <https://doi.org/10.1016/j.jsis.2019.01.003>
- [15] Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. (2013). Digital business strategy: Toward a next generation of insights. *MIS Quarterly*, 37 (2), 471–482. <https://doi.org/10.25300/MISQ/2013/37:2.3>
- [16] OECD. (2021). *The Digital Transformation of SMEs*. OECD Publishing. <https://doi.org/10.1787/bdb9256a-en>
- [17] European Commission. (2023). *Annual Report on European SMEs 2022/2023*. Luxembourg, Publications Office of the European Union.