

DIGITAL TRANSFORMATION OF CUSTOMER EXPERIENCE IN SMEs EVIDENCE FROM HUNGARIAN FIRMS

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Small and medium-sized enterprises (SMEs) are key to economic resilience, yet their digital maturity and customer experience (CX) practices differ significantly. Research emphasizes that customer-centric development, data-driven decision-making, and the adoption of emerging technologies -especially artificial intelligence (AI)- are critical for competitiveness and long-term sustainability. This study examines how Hungarian SMEs integrate digital solutions into customer experience management and how these practices enhance performance and innovation. We propose a framework for the digital enablement of CX activities and report findings from a survey with quantitative insights on customer-centric initiatives, digital tool usage, and perceived organizational impact. Particular attention is given to AI-supported solutions, including automated communication, CRM systems, and analytics tools, and their role in process modernization and customer satisfaction. By identifying adoption patterns and perceived effectiveness, the research contributes to a deeper understanding of digital transformation in the SME sector and supports more sustainable, technologically empowered operations.

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1 Introduction

SMEs form the structural backbone of the European economy, accounting for 99.8% of enterprises and approximately two-thirds of total employment (DiBella et al., 2023). In Hungary, SMEs generate more than half of gross value added and dominate the business landscape (OECD, 2023). Given their systemic importance, understanding the drivers of SME competitiveness remains a central theoretical and practical concern—particularly in Central and Eastern Europe (CEE), where digital transformation trajectories are uneven.

Moreover, European evidence highlights substantial heterogeneity in SME digital maturity, particularly in CEE contexts (European Commission, 2024). Such heterogeneity suggests that SMEs cannot be conceptualized as scaled-down versions of large corporations; rather, their structural characteristics may shape how CXM and AI-supported practices are implemented and leveraged (Kraus et al., 2022).

Against this background, this study addresses our main research question: **What is the level of digital customer experience maturity among Hungarian SMEs?**

By empirically examining the digital enablement of CX activities in Hungarian SMEs—with particular attention to AI-supported tools such as CRM systems, automated communication platforms, and analytics solutions—this study advances existing research in three ways. First, it integrates CXM maturity, digital transformation, and innovation outcomes within a unified analytical framework. Second, it provides context-sensitive evidence from a CEE economy.

2 Customer Experience and Digitalisation

Contemporary competitive environments are increasingly shaped by digitalization, data-driven business models, and artificial intelligence (AI). In this context, value creation has shifted from transactional efficiency toward orchestrated customer experiences (Pine & Gilmore, 1998). Customer experience (CX) is conceptualized as a multidimensional construct encompassing cognitive, emotional, behavioral, and sensory responses across the customer journey (Lemon & Verhoef, 2016). Crucially, CX management (CXM) is most effective when embedded across organizational processes rather than confined to marketing functions (Becker & Jaakkola, 2020). Empirical evidence suggests that AI adoption in European firms is positively

associated with multiple forms of innovation, including product, process, organizational, and marketing innovation (Arroyabe et al., 2025). In SME contexts, successful digital transformation depends on strategic alignment, leadership commitment, and capability development rather than technological intensity alone (Hanelt et al., 2021). These findings align with the multidimensional innovation framework of the Oslo Manual (OECD & Eurostat, 2018), indicating that AI may function as an innovation catalyst when embedded within strategic and organizational processes. However, while prior research has established links between digitalization and innovation performance, considerably less attention has been devoted to how AI-enabled tools are operationalized within customer experience management processes in SMEs.

2.1 Hungarian SMEs and Digital Maturity

SMEs are a foundational element of Hungary's economy. In the current global economic environment, characterised by rapid technological change and rising competitive pressures, conscious planning especially in digitalisation and innovation is essential for sustainable growth.

A notable strength of Hungarian SMEs is their flexibility and capacity to respond to local market conditions. Smaller organisational structures often facilitate quicker decisions and adjustments to demand shifts, offering adaptability advantages relative to larger corporations. This is particularly valuable in times of economic shock or sectoral disruption (Endrődi-Kovács, Stukovszky, 2022).

Research on perceptions of digital maturity among Hungarian SMEs suggests a mismatch between firms' perceived digital readiness and actual digital capabilities, with smaller firms often overestimating their adaptability while larger SMEs demonstrate comparatively more realistic assessments of their digital preparedness. This highlights the need for targeted interventions and planning frameworks to help SMEs benchmark and strategically prioritise digital investments (Péntek et al., 2025).

Hungarian SMEs face a complex interplay of challenges and opportunities in digitalisation and Industry 4.0 adoption. While policy frameworks and support programmes provide an important foundation, ongoing efforts are needed to

strengthen digital skills, foster innovation cultures, and overcome structural barriers to technology integration.

Innovation is a critical driver of competitive advantage and value creation in SMEs. Evidence from research on Hungarian SMEs' innovation performance, aligns with broader EU indicators showing that Hungary belongs to the group of “moderate innovators,” with innovation performance below the EU average. This relative position has implications for SME competitiveness and long-term growth, especially in knowledge-intensive sectors. (Mile, 2011) Recent empirical research outside Hungary also stresses the role of knowledge transfer and internal management practices in enhancing SME innovation, suggesting that firms which embed employee involvement and knowledge sharing into their strategies exhibit higher innovation activity. (Karácsony, 2025)

Innovation capacity remains a strategic differentiator for SMEs in the digital age. Research on Hungarian SMEs highlights that firms with stronger cultures of risk-taking and openness to change are more likely to enhance their digital innovation capabilities, which in turn improves digital transformation maturity and performance outcomes (Kő et al., 2022).

3 Methodology

The aim of this study was to explore the maturity of customer experience management among Hungarian SMEs and to identify those innovations that support development and contribute to enhancing competitiveness. The present paper focuses on the analysis of digital CX maturity and seeks to answer the following research questions:

Main research question: **What is the level of digital customer experience maturity among Hungarian SMEs?**

Sub questions:

- How important is customer experience management for Hungarian SMEs?
- How do they integrate digital solutions into everyday business practices?

- What insights do the key dimensions of digital CX maturity provide?

For the purposes of the research, a quantitative methodology was applied, specifically a telephone-based survey. The topic-specific questions of the questionnaire were developed in alignment with the research objectives and based on dimensions identified in the relevant literature. In addition to multiple-choice questions and evaluations using a 1–7 Likert scale, open-ended questions were also included, as these facilitated a deeper understanding of the phenomena examined.

The target group consisted of owners and/or managers of Hungarian SMEs. Representative data collection was conducted in December 2025 with the involvement of HuCall Hungarian Call Center Ltd. A total of 300 SMEs were successfully reached. The first section of the survey focused on customer experience management, while the second block concentrated on questions related to digital solutions.

4 Results

As we had a limited time after closing the survey to analyze the results, here we share only the first overview of the findings. Deeper statistical analysis is due in the upcoming phase of the research.

The 300 SMEs included in the study operate in the service sector. The key characteristics of the respondents are highlighted below. In terms of employment size distribution: 10–49 employees: 255 enterprises (85%), 50–249 employees: 45 enterprises (15%). The majority of enterprises (86.7%) operate as limited liability companies, while limited partnerships and joint-stock companies each accounted for 5% of the sample.

The main findings related to digital customer experience maturity are presented along four dimensions.

Customer Experience Strategy: Only 21% of the surveyed enterprises have a formal CX strategy. Within this group, the primary objectives identified include revenue growth, customer acquisition, customer retention, customer satisfaction, quality improvement, the development of long-term relationships, development

based on customer feedback, service innovations providing competitive advantage, and the expansion of experience-creating tools. These factors indicate that enterprises recognize the growing importance of customer experience and its key areas. This was further confirmed by responses to the question *“How important do you consider customer experience for the success of your enterprise?”*, which received an average score of 6.00 on a 1–7 scale.

Digital Innovations: Over the past two years, 39% of respondents have implemented significant digital developments. Based on open-ended responses, the most frequently mentioned innovations include CRM systems, customer data management, website and webshop development, online payment solutions, online customer service, online order management, chat functions, mobile applications, social media presence, automated communication, customer satisfaction measurement, loyalty programs, artificial intelligence, personalization, and the development of internal systems (e.g. ERP, business management systems, digital signatures, barcode systems, GDPR compliance).

Digital Support Systems: Among the surveyed SMEs, 22% do not use any digital solutions. A total of 28.7% apply CRM systems, while 12.7% utilize AI and business intelligence systems. In response to the question “Which of the following digital solutions do you use?”, the ranking based on the number of mentions was as follows: 1. Customized, company-specific IT systems, 2. Web analytics, 3. Enterprise resource planning (ERP) systems, 4. Artificial intelligence, 5. Personalized marketing automation, 6. Call centers, 7. Chatbots. The perceived supportive contribution of digital tools was rated at an average of 4.69.

Digital Customer Communication Channels: Online marketing activity and engagement were rated at 3.76 on average. The most frequently used digital customer communication channels, based on the number of mentions, were ranked as follows: 1. E-mail, 2. Telephone, 3. Website, 4. Social media platforms, 5. Video, 6. Call center, 7. Other digital platforms, 8. Skype.

The survey also examined perceived barriers and risk factors related to the digital development of CX. Based on six predefined response options, the most frequently identified obstacles were: 1. Lack of time, 2. Lack of expertise and skilled personnel,

3. Lack of financial resources, 4. Technological and infrastructural constraints, 5. Lack of owner support.

Additional factors mentioned included data protection concerns, distrust, lack of interest, long payback periods, and the perception that such developments are unnecessary.

5 Discussion and Conclusions

Across scientific literature, one theme emerges clearly: conscious strategic planning in digitalisation and innovation is not optional but essential for SMEs seeking to thrive in highly competitive and technology-driven markets. Digital transformation strategies must be aligned with business goals, workforce development, and investments in technology. Ineffective or ad hoc approaches to digital adoption undermine potential productivity gains and can widen the competitive gap with more digitally advanced firms.

The aim of the empirical study was to explore the level of digital customer experience maturity among Hungarian small and medium-sized enterprises (SMEs), as well as to examine how customer experience management and the digital solutions supporting it are reflected in everyday business practice. The empirical findings provided relevant and nuanced insights along the three formulated research questions.

The first research question addressed the extent to which Hungarian SMEs consider customer experience management to be important. The results indicate that the strategic importance of customer experience is widely recognized among the surveyed firms, as reflected by the relatively high mean importance score (6.00). At the same time, the findings reveal a pronounced inconsistency: while the role of customer experience has clearly been acknowledged, its formalized and strategic-level management has not yet become widespread. This discrepancy suggests that, in many cases, customer experience management continues to operate as an implicit and non-systematic practice, which may limit its potential to generate sustainable competitive advantage in the longer term.

The second research question examined how Hungarian SMEs integrate digital solutions into their everyday operations in order to support customer experience. The empirical evidence reveals a heterogeneous pattern of development. While some enterprises primarily employ digital tools for operational and administrative purposes, others have already incorporated data-driven, experience-oriented, and personalization-focused solutions into their business practices. This divergence suggests that digitalization does not follow a uniform or prescriptive development path but instead evolves along firm-specific strategies and capabilities. Consequently, digital customer experience management in some SMEs extends beyond mere tool adoption, whereas in others it remains at a pre-implementation stage.

The third research question focused on the key dimensions of digital customer experience maturity. The findings indicate that although a considerable number of enterprises have implemented digital developments in recent years, the diffusion of more advanced systems supporting customer experience management—particularly CRM solutions and artificial intelligence-based tools—remains limited. The moderate evaluation of the supportive role of digital tools, together with the relatively low level of online customer engagement activities, suggests that a substantial share of the potential embedded in digital technologies is still underutilized. This result reinforces the assumption that digital maturity is not solely determined by the mere presence of technology, but is closely linked to its strategic integration and organizational embeddedness.

Overall, the results of the study demonstrate that digital customer experience management among Hungarian SMEs is situated within a transitional stage of development. While recognition of the importance of customer experience has become widespread, strategic focus, conscious planning, and the holistic management of customer experience are only partially realized. The study contributes to the existing literature by providing empirical evidence on the relationship between customer experience management and digitalization in an SME context, and by highlighting that the development of digital customer experience maturity is primarily the outcome of managerial and organizational decisions, rather than solely the result of technological investments.

Progress in this domain can be supported by strengthened strategic focus, the integration of conscious planning practices, and the holistic management of customer experience. In particular, the literature highlights the importance of the following factors:

- Assessing digital readiness and capability gaps based on robust measurement frameworks rather than subjective perceptions (Péntek et al., 2025).
- Integrating innovation processes into organizational strategy, supported by employee engagement and effective knowledge management practices (Karácsony, 2025).
- Leveraging public and private support mechanisms, including targeted financing schemes, digital skills development initiatives, and incentives that encourage technology diffusion and adoption (Endrődi-Kovács & Stukovszky, 2022).

These deliberate planning efforts help SMEs reconcile internal resource constraints with external opportunities, thereby enabling more sustainable growth trajectories and enhanced resilience to economic shocks.

6 Future research directions

Several promising avenues for future research can be identified. First, future studies may focus on the responses of managers within a single, clearly defined sector, enabling a more in-depth, sector-specific analysis. Second, extending the research to an international context would allow for cross-country comparisons and a broader understanding of digital customer experience maturity patterns.

Third, further studies could explicitly examine customer experience management as a dynamic organizational capability, thereby strengthening the theoretical integration between CXM and strategic management perspectives.

7 Limitations

This study focuses on service-oriented small and medium-sized enterprises, which limits the generalizability of the findings. Future research may therefore extend the analysis to manufacturing SMEs or even large enterprises, where the results could provide a valuable basis for comparative analysis across organizational contexts.

The novelty of the present research lies in its examination of customer experience maturity within a digital and innovation-centered framework, offering a detailed, practice-oriented overview grounded in organizational perspectives. The findings both reinforce and complement existing theoretical approaches while highlighting additional areas for development from a decision-maker's perspective. Overall, the results contribute to a deeper understanding of the entrepreneurial environment and support the wider diffusion of customer experience management innovations.

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