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Bridging the gap between digital maturity and market presence: evidence from Hungarian SMEs

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Abstract
Digital technologies became part of the day-to-day operations of many small and medium-sized enterprises also. However, availability of these new technologies does not guarantee that the companies will achieve better market performance too. This paper focuses on the relation between the level of digital maturity and market presence using questionnaire research involving 81 Hungarian SMEs are selected from different kind of sectors. Digital maturity and market presence were both analyzed as a multidimensional construct which can be explained by different characteristics of the firm's technology development and their market activity. The analysis shows that there is a high correlation between the two variables moreover companies which demonstrate higher level of digital maturity tend to have better market presence. Digital maturity accounts only for 52.9% of variance in market presence. The findings indicate also an important difference between the availability of digital tools and their effective use for organizational, customer- and market-related purposes. For SMEs, this distinction is especially important because the adoption of modern technologies alone may not automatically lead to a stronger market position. The results therefore suggest that digital development and its practical market application should be considered together.

Introduction

Digital technologies have become an integral part of the daily operations of many small and medium-sized enterprises (SMEs). Websites, ERP and CRM systems, cloud services, digital communication tools, and more recently artificial intelligence are increasingly accessible to smaller firms. However, the availability of such technologies does not automatically result in greater market visibility, more effective customer acquisition, stronger reputation, or competitive advantage. Digital transformation therefore needs to be understood not simply as technology adoption, but as an organizational and strategic process in which digital resources are integrated into value creation, business processes, and market-oriented activities [1], [2], [5], [6].

This distinction is especially relevant for SMEs. Compared with large enterprises, SMEs generally operate with more limited financial, technological, and specialized human resources, although their relatively flexible organizational structures may enable faster responses to changes in the business environment [12], [14]. Previous studies also show considerable differences among SMEs in digital readiness, technology adoption, managerial involvement, employee skills, and data

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use [13], [17], [18]. From a dynamic capabilities perspective, technologies create sustainable value when firms can identify opportunities, allocate resources, and adapt organizational routines to changing market conditions [3], [4]. Accordingly, digital maturity should be treated as a multidimensional organizational capability rather than as the mere possession of digital technologies. Existing digital maturity models have contributed substantially to assessing technological infrastructure, process integration, data use, organizational culture, employee competence, leadership, and strategic alignment [11], 13]. Nevertheless, these approaches primarily focus on internal readiness and development. They provide less direct information about whether digital development is reflected in externally observable market outcomes. For SMEs, such outcomes may include online visibility, customer interaction, communication effectiveness, customer experience, brand engagement, reputation, and wider market reach [24]–[28]. This creates a need to examine internal digital development together with the firm's external market presence.

The issue is particularly relevant in the Hungarian SME sector. The Digimeter studies and other Hungarian research demonstrate substantial heterogeneity in the digital maturity of SMEs and show that the adoption and use of digital technologies differ across organizational functions and company characteristics [29]–[34], [37]. Although basic digital solutions have become increasingly widespread, less is known about the extent to which firms translate these resources into stronger customer-facing and market-related outcomes. Research has generally examined digital maturity, digital competences, technology adoption, organizational performance, or competitiveness, while market presence has rarely been treated as a distinct multidimensional outcome of digital maturity.

The aim of this study is therefore to examine the relationship between digital maturity and market presence among Hungarian SMEs. Using questionnaire data from 81 enterprises, the study assesses digital maturity through technological infrastructure, digital systems, digital communication, and data-driven operations, while market presence is evaluated through online visibility, offline presence, customer interaction, and brand awareness and reputation. By analyzing these two constructs together, the study seeks to determine whether higher levels of internal digital development are statistically associated with stronger external market presence. The cross-sectional design is intended to identify association rather than causality.

2. Literature review

2.1. Digital maturity as a multidimensional organizational capability

Digital maturity is currently considered a key research topic in digital transformation. Although the early studies were mainly concentrated on the process of technology adoption, the modern approaches tend to view digital maturity as a capability that characterizes the level of integration of digital technologies into management and business processes [1], [2].

According to recent studies, digital maturity should not be evaluated exclusively based on the availability of technological infrastructures. It should be rather a manifestation of technological, organizational, and managerial development in the same time that allows the creation of business value through the digitalization [3], [4]. Consequently, digital maturity has evolved from a purely technological thing to an organizational concept that is closely connected to the issue of strategic alignment and innovation capability [5],[6].

Several maturity models are considered to be as an attempt to define this idea. Industry 4.0 models primarily were focused on technological innovations related to production, whereas the models, included evaluation of leadership skills, organizational culture, employees' skills and data usage [11]. At the same time, OECD research emphasizes that digitalization of SMEs requires, apart from technological investment, also management and organizational learning skills [14], [15], [38].

Despite the different approaches of maturity models, a general agreement has been made that digital maturity must be measured using several interrelated dimensions instead of isolated technological factors. Considering this digital maturity has to be examined as a multidimensional concept involving four major dimensions:

- **Technological infrastructure**, which means availability and reliability of the technological environment of the company daily operation;
- **IT system**, which refers to the use of IT solutions by an organization;

- **Digital communication**, which is associated with the ability of an organization to communicate with its customers and stakeholders via digital channels and means;
- **Data-driven business practices**, which refer to the use of digital data and analysis them through decision making.

These factors, taken together, help define not only the technical readiness of SMEs but also their organizational readiness for using and applying digital assets. This way of thinking fits well within the framework of dynamic capabilities concept where the source of competitive advantage lies in the integration and constant reconfiguration of resources rather than only ownership of the technology itself [3], [4], [39].

Moreover, research findings show that there is a significant difference in digital maturity among small and medium-sized businesses. Even though basic digital technology has become accessible to everyone, companies vary greatly in terms of how efficiently they utilize this technology in their daily activities [17], [18], [20]. The same is true for studies conducted in Hungary [29]–[34].

To sum up these, digital maturity should not be considered simply as a measure of the technical level of development. Instead of this rather the organizational capability will determine whether the company is able to achieve better business results or not. This multidimensional interpretation is providing the conceptual foundation for the empirical assessment conducted in the present study.

2.2. Market presence as an external outcome of the digital maturity

Many existing studies investigate mainly the relationship between digitalization and organizational performance, productivity, innovation, or financial outcomes [5], [7], [8]. However these indicators provide information about organizational success, but they do not give any information about the influence of digital capabilities on firm's visibility, customer interactions, and competitive position in the marketplace at all.

Market presence particularly plays an important role of the organizational outcome for SMEs. Large enterprises usually operate with well-known brands and extensive marketing resources, but SMEs are competing via customer relationships, visibility, reputation, and responsiveness rather than economies of scale. It means, that their ability to transform digital investments into effective market communication and customer engagement may determine their long-term competitiveness.

Recent marketing discourses say that the organizations interact with customers throughout the customer experiment. Websites of corporations, social media sites, search engines, digital advertising, and the customer relationship management software have become an integrated part of marketing communication [24], [25], [27]. Digital media not only facilitate the communication, but they affect the perception of consumers such as their trust, awareness and purchases. This means that market presence is an integrated multi-dimensional concept that involves not just digital but also traditional way of communication.

Customer engagement is also one of the vital aspects of having an organization's market presence. In the modern reality, instead of being passive listeners of marketing communications, customers actively take part in the process of value creation through various digital communication means, including providing feedback, making recommendations, and engaging with content on social media [25], [26]. This helps build brand awareness, increase customer loyalty, and improve organizational reputation.

Based on these findings, the current study conceptualizes the market presence as a multidimensional construct consisting of four main dimensions.

- **Online visibility** is the level at which the organization or company can be seen or accessed online through the internet including websites, search engines and other online social networking sites.
- **Offline presence** is how the organization or the company can be seen or accessed offline from the normal business operations, like business contacts, exhibitions, etc.
- **Customer interaction** is how the business or the company can have and build its relationship with the customers by communicating and interacting with them regularly.
- **Brand awareness and reputation** is what the customer sees of the business or the company.

These four aspects provide an understanding of different features of market performance as online presence is concerned with the virtual accessibility of the company, while offline presence illustrates the company's involvement in business operations in a regular manner. On the other hand, customer communication involves the process of building relationships with customers, and the brand recognition is the result of market activities. So, market presence is not just meaning of marketing success, but a firm's organizational competence demonstrating the extent to which companies turn their internal digital capabilities into real business benefits visible in the market. Firms with equally high technological competence can have quite different market presence because of the different levels of integration of digital technologies within communication efforts, customer relationship management, and branding. Thus, this concept goes far beyond existing digital maturity approaches as shifting attention from internal technological readiness towards measurable market-related outcomes.

So the present research suggests that market presence may serve as a proper outcome variable for measuring the real-business value of digital maturity among SMEs. Analyzing the interaction between these two variables will help reveal whether the use of digital technologies not only leads to business growth but also helps companies become more competitive in the market.

2.3. Relationship between digital maturity and market presence

While digital maturity and market presence are frequently discussed in relation to digital transformation, there have been very limited number of research that directly analyze how they affect each other. Existing studies have mainly concentrated on influence of digital technologies on organizational performance, efficiency, innovations capacity or economic benefits [1], [5], [7]. So, the mechanisms through which internal digital capabilities contribute to external market success remained undiscovered.

From a theoretical perspective, the known Dynamic Capabilities framework can help to understand the relationship between digital maturity and market presence. Dynamic capabilities enable organizations to get know market opportunities, detect emerging business possibilities, and continuously allocate organizational resources answering to environmental changes [3], [4]. Digital technologies therefore create competitive advantage only when they are effectively integrated into customer-oriented business processes and strategic decision-making.

The Resource Based View (RBV) is another theory that can help provide an answer. In accordance with this theory, technical resources on their own do not usually give any company any competitive advantage because they tend to be available to other businesses as well. What really leads to competitive advantage is a combination of technical resources with organizational knowledge, managing skills, communication practices and customers' relations [5]. As a result, the degree of visibility and customers' interaction between two SME companies with similar digital resources could be drastically different. Digital investments will help build organizational competencies that allow faster communication, personalization of contacts with customers, increased service quality, and more effective marketing activities [2], [6]. Such achievements can further lead to greater online visibility, more intense customer contacts, better reputation of the brand, and market recognition.

Earlier studies proved also that technology-related expenditures cannot guarantee tangible gains on the market [12], [18], [20]. The organizational culture, the managerial commitment, the skills of employees, the strategic alignment and successful implementation of information technology in organizational processes determine the ability to translate technological maturity into actual market results [3], [6], [13]. That is why companies with similar technological maturity often demonstrate significantly different levels of market engagement.

Empirical evidence from SME research suggest that digital development is characterized by considerable heterogeneity. While some firms successfully integrate digital technologies into marketing, customer relationship management, and strategic decision-making, others restrict digitalization to administrative or operational activities [14], [17], [21], [40]. Consequently, improvements in technological capability do not necessarily lead to improvements in market performance.

Building upon these theoretical arguments, the present study assumes that digital maturity enhances market presence because more digitally mature enterprises are expected to communicate more

effectively with customers, utilize digital communication channels more efficiently, respond more rapidly to market changes, and strengthen their visibility and reputation.
Based on these this study proposes the following research hypothesis:

H1: *Digital maturity is positively and statistically significantly associated with the market presence of Hungarian SMEs.*

This hypothesis is the conceptual basis of the empirical analysis presented in the following sections. By examining the relationship between these two multidimensional constructs, the study aims to provide empirical evidence regarding whether internal digital capabilities are reflected in stronger external market performance.

3. Methodology

3.1. Research Design

The fundamental aim of this research project is to study the association between digital maturity and market presence in case of SMEs in Hungary. The research in particular seeks to investigate the correlation, if any, between high levels of digital maturity and market presence. This means that the research would generate some insights into how digitally mature firms perform externally in the market environment.

Quantitative approach for research was taken to achieve the research aim. Questionnaire was used for the purpose of data collection, which was tailored to assess various dimensions of the digital maturity and market position of small and medium-sized enterprises. It should be noted that the instrument for data gathering was created using a review of the relevant literature on digital transformation, digital maturity, and competitive advantage of small businesses [11], [14], [29]. The study applies a cross-sectional survey design, in which data were collected from enterprises at a single point in time. This approach enables the analysis of relationships between organizational characteristics without manipulating the research environment and is widely applied in digital transformation research involving SMEs [2], [12], [18].
The conceptual framework of the research has two multidimensional constructs. Digital maturity is an independent variable which can be operationalized by four dimensions, including digital infrastructure, digital systems, digital communication and data-driven operations. Market presence is a dependent variable that will be measured by four dimensions – online presence, offline presence, customer interaction and brand recognition. The conceptual framework of the research is depicted in Figure 1 below. It shows the suggested relationship between Digital Maturity and Market Presence and summarizes the structure of multidimensional variables used in the research.

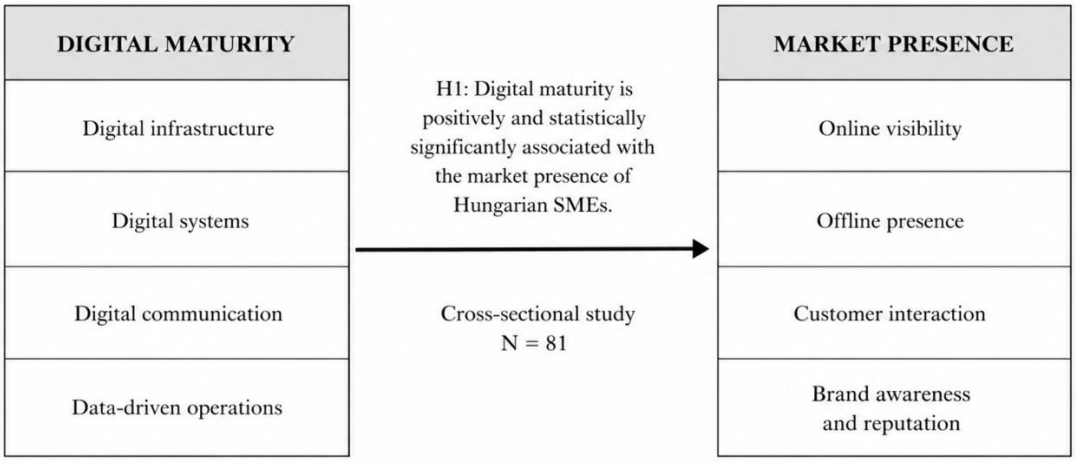

Figure 1. Research model: The association between digital maturity and market presence

This methodology framework was chosen in order to achieve accurate measuring of both concepts and prove their correlation through reliable statistical data. The whole research procedure

involved construction of the questionnaires, data collecting, cleaning, reliability testing, statistical descriptions, and hypothesis proving.

3.2. Sample and data collection

This empirical study was carried out among companies operating in Hungary meeting the SMEs criteria provided by the European Commission, which include micro, small, and medium-sized from different kind of sectors. SMEs are playing an important role in Hungarian economy.

The reference population of the study comprises SMEs operating in Hungary rather than enterprises from a specific region. According to the latest regional statistics of the Hungarian Central Statistical Office (HCSO/KSH), 894,262 small and medium-sized enterprises were included in the national SME population in 2024 [36]. Table 1 presents the size and selected characteristics of this population by region. The sample of 81 firms therefore represents only a small fraction of the national SME population and was not designed to be statistically representative of all Hungarian SMEs; the results should be interpreted within this sampling limitation.

Table 1. Main indicators of SMEs by region in Hungary, 2024

Indicator	Central Hungary	Central Transdanubia	Western Transdanubia	Southern Transdanubia	Northern Hungary	Northern Great Plain	Southern Great Plain	Hungary
SMEs in industry and construction	60,632	22,921	20,261	15,799	15,286	21,657	21,557	**178,113**
SMEs in services	322,391	68,968	67,910	53,734	51,810	75,900	75,436	**716,149**
Total number of SMEs	**383,023**	**91,889**	**88,171**	**69,533**	**67,096**	**97,557**	**96,993**	**894,262**
Share of national SME population (%)	42.8	10.3	9.9	7.8	7.5	10.9	10.8	**100.0**
Sales revenue per SME (thousand HUF)	95,681	59,837	64,778	55,633	57,371	66,665	70,106	**77,023**
Gross value added per SME (thousand HUF)	26,477	17,817	18,084	14,905	16,115	17,288	17,614	**21,119**
Investment per SME (thousand HUF)	3,227	1,845	2,035	1,549	2,395	2,733	2,824	**2,677**

Source: own compilation based on HCSO/KSH, Territorial Statistical Yearbook 2024, Table 4.2.12 [36].

The regional figures show a pronounced concentration of SMEs in Central Hungary, which accounted for 42.8% of the national SME population in 2024. The remaining regions each represented between 7.5% and 10.9% of the national total. These figures provide population-level context for the survey while also underlining that the present sample was exploratory and not regionally stratified.

Data were gathered with the help of a structured questionnaire that was tailored specifically for our study. The questionnaire development process took place after a thorough analysis of the existing literature related to digital transformation, digital maturity, and competitiveness of SMEs; measurement items included in the questionnaire were also tailored to the peculiarities of the business environment in Hungary. A pre-test of the questionnaire took place before the actual survey.

The survey consists of three major parts. In the first part, we were collecting information about general organizational attributes: company size, economic activity, year of foundation, annual sales, and other demographic factors of companies participating in the research. The second part of the questionnaire served to evaluate the degree of digital maturity using several questions which reflected the dimensions found in our theoretical model. The third section assessed market presence using indicators describing the external visibility, customer relationships, and market positioning of the participating firms.

The data were collected online by sending the questionnaire via professional networks and directly to Hungarian firms. Participation was voluntary, and the informants were made aware that any information supplied would be handled anonymously and used solely for scientific studies. The questionnaires were filled out by entrepreneurs, CEOs, or other high-ranking officials familiar with their company's IT development. In total, 81 responses were deemed to be valid responses for the empirical analysis based on their eligibility and adherence to the criteria set out for sampling. The non-eligible and incomplete responses that had too many missing values were excluded from the analysis.

The obtained sample includes companies that vary in terms of organisational size, type of economic activity, and business experience. Thus, such a sample provides a proper framework for investigating differences in digital maturity and market presence among Hungarian SMEs. The characteristics of the obtained sample are described in the Results section.

3.3. Measurement of constructs

The survey has been designed specifically to accommodate the multidimensionality of the concept of digital maturity as well as of market presence regarding SMEs in Hungary. All construct items were created based on the theoretical model discussed in the previous section and were adjusted to SMEs in Hungary.

Each of the items used in the measurement of constructs was rated with the help of a 5-point Likert scale going from 1 “Strongly disagree” to 5 “Strongly agree”. Such scale provided proper basis for statistical processing for systematic evaluation of respondents' opinions [35].

Digital maturity

Digital maturity was defined through a multi-dimensional construct that comprises four complimentary aspects. First, digital infrastructure part involves assessing the availability and sufficiency of the technologies used by an organisation, including such factors as hardware, infrastructure, and IT. Second, digital systems are concerned with assessing the involvement of software solutions and applications in business processes within organisations.

Third, digital communication includes evaluating the application of various communication platforms for establishing connections with clients and other stakeholders. Lastly, data-driven operations imply analysing the involvement of digital data and information in decision-making processes. Thus, all these four aspects were included in the definition of the concept of digital maturity.

Market presence

The concept of market presence was also operationalized as a multidimensional construct with four dimensions corresponding to the external business position of SMEs.

Online visibility refers to the degree to which firms are identifiable and reachable via online means like companies' websites, search engines, and social networks. Offline presence captures the involvement of companies in classic business practices like participating in professional events, forming business connections, and operating in the market. Customer interaction is an indication of the quality of the dialogue and relationships established with customers in different channels of communication. Finally, Brand awareness and reputation refer to the awareness and perception of one’s recognition, credibility, and reputation in the market by firms.

Overall, these four dimensions provide an all-encompassing picture of the external position of SMEs in the market and help to evaluate what is the reflection of internal digital capability in market-related outcomes. The measurement structure of both multidimensional constructs and dimensions is presented in Figure 2 below.

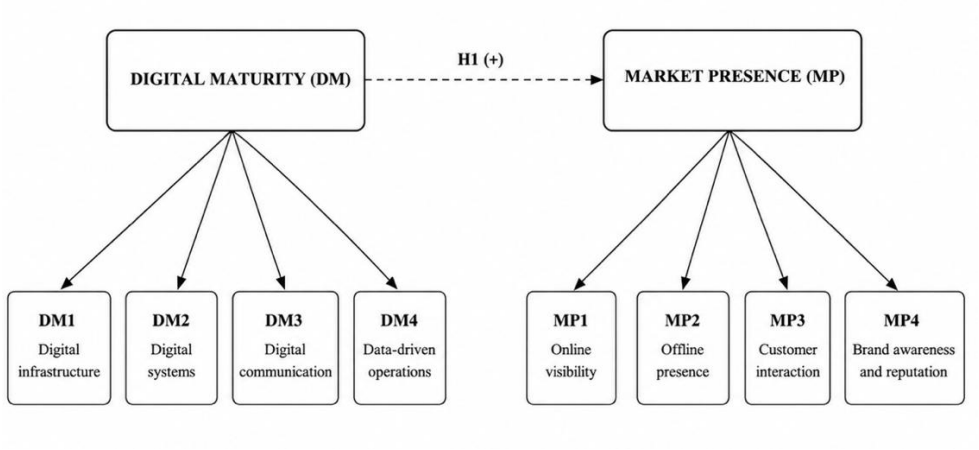

Figure 2. Measurement model and constructs

Measurement quality

Cronbach's alpha coefficient (α) was used to measure the reliability of the measuring scale. The reliability of the digital maturity and market presence concepts was tested separately by all the items included in the scales for both concepts. As suggested by Tavakol and Dennick [35] the Cronbach's alpha value of more than 0.70 would be considered as evidence of good reliability. Once the reliability of the measuring scales was established, the composites for digital maturity and market presence were computed and further analyzed in the subsequent statistical calculations. The link between the concepts was estimated by Pearson correlation and linear regression, see section 3.4.

3.4. Data Analysis

Data were analyzed through a multi-stage process of statistical tests to assess whether there is any link between digital maturity and market presence of Hungarian SMEs.

At the initial stage of analysis, the data were screened and prepared. This included checking the presence of missing data, conflicting response data and outliers in the sample of data. Only those surveys which have met the established criteria were selected for further analysis. At this stage descriptive statistics were computed to describe the surveyed companies and data distribution. The internal consistency of the measurement scales was evaluated using Cronbach's alpha (α). Cronbach's alpha is one of the most widely applied reliability measures in social science research and assesses the degree to which the measurement items consistently represent the same underlying construct. As suggested by Tavakol and Dennick [35], a Cronbach's alpha value above 0.70 indicates satisfactory internal consistency.

After the reliability test, the main constructs were subjected to descriptive statistics such as mean and standard deviation. This type of analysis provided information on the general level of digital maturity and market presence of the selected Hungarian SMEs. Correlation and linear regression analyses were applied to measure the association between Digital maturity and market presence constructs. Pearson's correlation coefficient was used to find the degree and direction of the association between the two constructs. Afterwards, linear regression analysis has been adopted to establish whether the independent variable predicts the dependent one.

Statistical significance was tested against the significance level of 5%. The standardized coefficient of correlation (β), the coefficient of determination (R^2), the t-statistic value, and its corresponding p-value were taken into consideration interpreting the results of regression analysis.

All of these provided an appropriate statistical basis for testing the research hypothesis concerning the relationship between digital maturity and market presence among Hungarian SMEs.

4. Results

4.1. Sample characteristics

Empirical analysis is carried out relying upon the results of 81 valid questionnaires completed by Hungarian SMEs. These companies operated in various sectors and differed in terms of organization size and turnover groups, thus being quite heterogeneous to examine the correlation of digitalization level and market presence.

Concerning the economic activity of the surveyed companies, the biggest share came from the service industry (n = 33), then trade (n = 15), construction (n = 13), industry/machinery manufacture (n = 10), and agriculture (n = 8). The two remaining participants had other economic activities. This sample presents the diversification of the SME sector in Hungary and facilitates the research of different levels of digital maturity in different business settings.

In terms of organizational size, the surveyed sample consists of different categories. Microenterprises, which are defined as having between 1-2 employees, comprised 24 participants, whereas 21 respondents were enterprises with between 3 to 9 employees. Moreover, 20 small businesses (10-49 employees) and 16 medium sized businesses (50-249 employees) have taken part in the study. Thus, the whole spectrum of enterprises of different SME sizes was covered.

In addition, the participants in this research also varied greatly from one another based on the annual net turnover. The most prevalent among those categories were firms generating an annual turnover more than 1 billion forints (n = 24). The presence of smaller enterprises was considerable, too; 15 companies generated less than 20 million forints annually, while 14 others had a yearly income between 20 million and 50 million forints, 8 companies had an annual turnover between 50 and 100 million forints, 12 enterprises had an annual turnover of 100 to 500 million forints, while 8 had 500 million forints to 1 billion forints.

So, the sample demonstrated substantial heterogeneity in terms of sector, company size, and economic performance. This heterogeneity provided an appropriate empirical basis for examining the relationship between digital maturity and market presence across enterprises with differing organizational characteristics.

4.2. Descriptive Statistics

Descriptive statistical analyses were conducted to provide an overview of the levels of digital maturity and market presence among the participating Hungarian small and medium-sized enterprises before testing the proposed relationship between the two constructs.

Composite scores were calculated for Digital Maturity and Market Presence by averaging the corresponding questionnaire items for each respondent. Both constructs were measured on a five-point Likert scale, where higher values indicate higher levels of digital maturity and stronger market presence. The descriptive statistics are presented in Table 2.

Table 2. Descriptive statistics of the principal constructs

Construct	N	Mean	SD
Digital maturity	81	3.50	1.07
Market presence	81	3.38	1.00

The results indicate a moderately high level of digital maturity among the participating SMEs, with an overall mean score of 3.50 (SD = 1.07). This suggests that the surveyed enterprises have, on average, progressed beyond the basic adoption of digital technologies, although considerable differences remain between individual firms in the extent to which digital solutions are embedded in their operations.

Market presence achieved a slightly lower mean score of 3.38 (SD = 1.00). The result indicates a generally favorable level of market visibility, customer interaction, and market positioning among the surveyed enterprises. However, the lower mean value compared with digital maturity suggests that

the development of internal digital capabilities is not necessarily accompanied by an equally high level of externally observable market presence.
The relatively large standard deviations observed for both constructs indicate substantial heterogeneity within the sample. This variation is consistent with the diverse composition of the participating enterprises in terms of size, sector, and economic characteristics and provides an appropriate empirical basis for examining whether differences in digital maturity are systematically associated with differences in market presence.

Overall, the descriptive results reveal a small gap between the average levels of internal digital development and external market presence. Whether this difference is accompanied by a systematic relationship between the two constructs is examined through the correlation and regression analyses presented in Section 4.4.

4.3. Reliability Analysis

As shown in Table 3, the 22-item digital maturity scale achieved a Cronbach's alpha of 0.967, while the 16-item market presence scale yielded an alpha of 0.951. Both values substantially exceed the commonly accepted threshold of 0.70 [35], indicating excellent internal consistency.

Table 3. Reliability statistics

Construct	Number of items	Cronbach's α
Digital maturity	22	0.967
Market presence	16	0.951

The high reliability coefficients indicate that the items within each scale consistently measure their respective underlying constructs. Accordingly, the composite scores of digital Maturity and market presences were considered sufficiently reliable for the subsequent correlation and regression analyses.

4.4. Correlation and regression analysis

After the reliability assessment, the relationship between digital maturity and market presence has been analyzed by using Pearson correlation and simple linear regression.

The Pearson correlation analysis showed a strong positive and statistically significant relationship between digital maturity and market presence ($r = 0.727$, $p < 0.001$). This result indicates that SMEs with higher levels of digital maturity tend to exhibit stronger market presence.
To further examine this relationship, a simple linear regression analysis was conducted with digital maturity as the independent variable and market presence as the dependent variable. The regression model was statistically significant ($t = 9.416$, $p < 0.001$). The unstandardized regression coefficient was $B = 0.680$, indicating that a one-unit increase in the digital maturity score was associated with an estimated 0.680-unit increase in market presence. The standardized regression coefficient was $\beta = 0.727$, confirming a strong positive relationship between the two constructs.
The coefficient of determination was $R^2 = 0.529$, indicating that digital maturity accounted for approximately 52.9% of the observed variance in market presence within the sample. The results of the correlation and regression analyses are summarized in Table 4.

Table 4. Correlation and regression results

Indicator	Value
Pearson's correlation (r)	0.727
Unstandardized coefficient (B)	0.680
Standardized coefficient (β)	0.727
t-value	9.416
p-value	< 0.001
Coefficient of determination (R^2)	0.529

These results confirm Hypothesis H1. The association between Digital Maturity and Market Presence is positive and significant for the investigated small businesses in Hungary. Moreover, since the model shows such high explanatory power, the variation in the degree of digital maturity can be associated with the variation in market presence.

5. Discussion

The first research question was focused on investigating the link between digital maturity and market presence of Hungarian SMEs. From the empirical part of this research, we can conclude that the hypothesis under consideration was well substantiated. There is a high and significant positive correlation between digital maturity and market presence ($r = 0.727$, $p < 0.001$); from the regression model, it follows that digital maturity explains 52.9% of the variance in market presence ($R^2 = 0.529$).

Findings are consistent with those found by other researchers highlighting that it is not enough to implement some digital technology just because they possess some business value; they need to be properly integrated in the organization [2], [5], [6]. Hence, digital technologies should not be viewed in isolation from other organizational assets; rather, they should be viewed as means of achieving competitive advantage via their effective use within business processes, communications, customer relationships, and decisions. This view is also supported by the theory of dynamic capabilities [3], [4].

Additionally, our findings are consistent with earlier literature on SME digitalization. According to OECD investigations, the gains from the digital transformation are not only contingent upon having the necessary technological resources but also depend significantly on an organization's capabilities and its successful integration into operations [14], [15]. Earlier empirical studies have also proven that there are significant differences in the capabilities of firms to use digital technology irrespective of their increased technology adoption [13], [17], [18]. Our study is built upon this theoretical background but takes into account digital maturity as well as market presence.

The Hungarian context provides further relevance to these findings. Previous research such as Digimeter framework has demonstrated substantial heterogeneity in the digital maturity of Hungarian SMEs [29], [30]. Other Hungarian studies have similarly highlighted differences in the technological and organizational development of SMEs [31]–[34]. The present findings complement this literature by suggesting that differences in internal digital development are also closely associated with differences in externally observable market presence. Digital maturity can therefore be considered relevant not only from the perspective of internal organizational development but also in relation to the market position of SMEs.

The descriptive results provide an additional perspective on this relationship. The mean Digital Maturity score ($M = 3.50$, $SD = 1.07$) was slightly higher than the mean Market Presence score ($M = 3.38$, $SD = 1.00$). Although this difference was not subjected to a separate statistical significance test and should therefore be interpreted descriptively, it suggests that internal digital development does not necessarily translate proportionally into external market presence. Some enterprises may possess relatively advanced digital infrastructure, systems, or data-related practices without exploiting these resources to the same extent in customer-facing and market-oriented activities.

This observation has important managerial implications. Investments in websites, enterprise resource planning systems, customer relationship management platforms, cloud-based solutions, or artificial intelligence applications should not be evaluated solely according to their implementation or technological sophistication. Their strategic relevance depends on whether they contribute to stronger customer relationships, improved visibility, more effective communication, better decision-making, and a more favorable market position. SME managers should therefore consider digital development and market-oriented utilization as interconnected elements of the same transformation process.

On the other hand, the large amount of explained variation in the regression model must not be considered as an indication of any determinism. While the variable digital maturity explains about 52.9% of the variation in the dependent variable market presence in the sample, still there is a significant amount of variation that has not been taken into consideration. Some of the possible sources of unexplained variation could include variables such as firm size, industry type, firm age,

management skills, marketing budget, organization learning capacity, innovation capacity, and strategy orientation.
The following limitations need to be considered during the results' interpretation. Firstly, the study has used a rather small number of samples (81 Hungarian SMEs), which may negatively affect its external validity. Secondly, while there is quite a good variation in the sectors the respondents represent, it is not possible to reach any conclusions about sectors of activity due to the heterogeneity of the sample in terms of sectors of business operations. Thirdly, subjective bias is likely to be present due to self-assessment, conducted by the owners and CEOs/managers. Lastly, the cross-sectional design does not enable to identify cause-and-effect relationships.
These research gaps may be resolved by using larger sample sizes in the future and through longitudinal designs, among other things. There would be a chance for further investigation of possible mediating factors that could have influenced the results in these studies, such as internal organizational capacity, digital leadership, strategic alignment, organization size, organization sector, organization age, and others.

To sum up, the findings indicate that digital maturity and market presence are strongly interconnected among the surveyed Hungarian SMEs. The results support the view that the practical relevance of digital development lies not merely in the adoption of technologies but in the extent to which firms are able to utilize their digital resources in ways that strengthen their interaction with customers and their position in the market.

6. Conclusions

This study examined the relationship between digital maturity and market presence among Hungarian small and medium-sized enterprises. By linking internal digital development with externally observable market-related outcomes, the research aimed to extend the assessment of digital maturity beyond technological adoption and organizational readiness.

The empirical analysis, based on 81 Hungarian SMEs, identified a strong positive and statistically significant relationship between Digital Maturity and Market Presence ($r = 0.727$, $p < 0.001$). The regression analysis further showed that Digital Maturity accounted for 52.9% of the observed variance in Market Presence ($R^2 = 0.529$). Regarding the research hypothesis, the empirical evidence clearly supports H1: digital maturity is positively and statistically significantly associated with market presence among the surveyed Hungarian SMEs. Therefore, Hypothesis H1 is supported and not rejected. Table 5 summarizes the statistical evidence, interpretation, and the resulting hypothesis-testing decision.

Table 5. Hypothesis testing results

Hypothesis	Statistical evidence	Interpretation	Decision

H1: Digital maturity is positively and statistically significantly associated with market presence.	r = 0.727;
	B = 0.680; β = 0.727;
	t = 9.416;
	p <0.001;
	R^2 = 0.529
		Strong positive and statistically significant association; digital maturity explains 52.9% of the variance in market presence.	**Supported**

This research contributes to the existing literature by linking together two multidimensional constructs which are generally studied independently of each other. The concept of Digital Maturity was formed from digital infrastructure, digital systems, digital communication, and data-based operations, while Market Presence included online presence, offline presence, customer engagement, and brand recognition and reputation. This framework offers a more comprehensive understanding of digital transformation not only from the internal but also the external viewpoint of SMEs.
On the one hand, the results suggest that digital development does not represent an end in a practical sense. Investments in digital technology, enterprise software, CRM, digital communications, data usage, or new technology will be strategically important when those investments are related to the customer-centric processes in the context of building a strong presence in the market. Thus, when it comes to small businesses, the priorities in digital development need to be considered both from a technological and marketing point of view. The

observed relationships demonstrate strong associations but do not establish causality. Future research using larger samples, longitudinal designs, and additional organizational variables could provide a more detailed understanding of the mechanisms through which digital maturity is translated into market-related outcomes.

In conclusion, the results demonstrate that digital maturity and market presence are closely associated among the surveyed Hungarian SMEs. Digital maturity therefore represents more than the adoption of digital technologies: The practical significance of the concept is revealed through how extensively digital assets are used within organizational processes, as well as their connection with better customer engagement, visibility, and reputation.

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