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FACTORS OF THE ADAPTATION AND CHANGE SKILLS OF HUNGARIAN MICRO AND SMALL ENTERPRISES

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Abstract
Micro and small enterprises (MSEs) are essential contributors to the global economy, playing a key role in gross domestic product, private sector employment, and the external trade balance. Despite their significance, they have historically been under-researched, particularly in the context of innovation, where much of the focus tends to be on larger corporations. The innovation of MSEs is critical for their long-term competitiveness and sustainability, yet many studies fail to explore the specific factors that drive this innovativeness within these smaller firms. The objective of this research was to address this gap by conducting a comprehensive investigation into the factors that influence the adaptability and change capabilities of MSEs, both of which are crucial for fostering innovation. A bibliometric analysis, spanning nearly fifty years of academic literature, was undertaken to identify the key factors that impact the innovativeness of MSEs. This analysis led to the identification of ten significant factors, among which dynamic capabilities—defined as a firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments—stood out as the most prominent. Dynamic capabilities allow firms to not only respond to change but to anticipate and shape future trends, positioning them as key drivers of innovation within MSEs. In addition to the literature review, an empirical study was conducted using data from 207 Hungarian entrepreneurs. The statistical analysis of this data revealed a verifiable relationship between several of the identified factors and the innovativeness of these enterprises. Specifically, creativity, workplace autonomy, and dynamic capabilities were found to significantly influence both employee support for innovation and openness to innovative ideas. This suggests that fostering a work environment that encourages creativity and provides employees with a high degree of autonomy can enhance innovation within MSEs. In contrast, the factors of proactiveness and competitive aggressiveness did not demonstrate a conclusive relationship with either employee support for innovation or openness to innovation in the areas examined. The research also found that while some factors aligned with initial expectations, others only partially supported the original hypotheses. For instance, while dynamic capabilities, creativity, and autonomy were strongly linked to innovativeness, other factors such as organizational culture and leadership style had a more complex or indirect relationship with innovation outcomes. Overall, the results of this study are largely consistent with the international literature on the subject, particularly in emphasizing the pivotal role of dynamic capabilities in driving innovation within MSEs. These findings provide important insights for both researchers and practitioners, highlighting the importance of creating an organizational environment that nurtures creativity, grants employees autonomy, and strengthens dynamic capabilities. By focusing on these areas, MSEs can better position themselves to innovate and remain competitive in an increasingly dynamic and complex business landscape. This research contributes to the ongoing dialogue on innovation in small enterprises and underscores the importance of tailoring strategies to enhance the specific strengths of MSEs.
KEYWORDS: dynamic capabilities, innovativeness, small business, creativity, bibliometric analysis.
JEL classification: O10, O30, O31, O40, O47, O50

Introduction

In today's modern national economies, micro, small and medium-sized enterprises account for more than 99% of all profit-making economic actors (Edwards et al., 2005). Employers of 72% of non-public sector workers account for 55% of both gross value added and companies' sales revenue, making them a key driver of economies (Ajaz Khan et al., 2019; Michaelidou et al., 2011; Ortega-Argilés et al., 2014; Phuangrod et al., 2017; Skowron-Grabowska, 2023). According to Mamun et al. (2017), small businesses are now of crucial economic importance in all countries and their contribution to economic development through their employment base and the public revenues they generate is essential. This is no different in Hungary: based on the definition currently used in Hungary, micro, small and medium-sized enterprises together account for 99.9% of all Hungarian enterprises (NGM, 2023). The players in the three size categories are now very similar to the distribution of companies in the Member States that joined the European Union together with us in 2004 by size category (Hustiné, 2012; NGM, 2023). Following the political, social and economic changes that began in 1989, the number, national economic importance and employment base of small businesses in Hungary increased (Szerb & Ulbert, 2002), however, taking into account all domestic enterprises, each employer employs less than five people on average, and their innovation activity continues to lag behind that of large companies (NGM, 2023).

The contribution of small businesses to economic growth and development, public revenues, employment, reducing poverty and inequalities, and promoting trade and investment between countries is widely proven in the literature (Ayyaghari et al., 2011; Henderson & Weiler, 2010; Mamun et al., 2018; Skowron-Grabowska, 2023; Zacca et al., 2015).

In their research, Oliveira et al. (2017) come to a similar conclusion: the importance of the role of micro, small and medium-sized enterprises in economic growth is already well established in the literature, but he adds that many questions about their innovation are still unclear. This is due, among other things, to the fact that the European Union's investigations do not cover micro-enterprises, so our knowledge of the smallest economic operators is lacking in several respects (den Hertog et al., 2010; Matejun, 2016; Raghuvanshi et al., 2019). However, since the 1980s, the impact of micro-enterprises on the expansion of national economies has become crucial (Anlesinya et al., 2015; Boyer & Blazy, 2014), as they have become key players in economic growth due to their physical, human and knowledge

capital and related innovative capacity, therefore a better understanding of the factors behind their prosperity and innovation has broad economic and legislative relevance (Eggers et al., 2013).

Research gap

For a business to be innovative, it must recognize the factors that contribute to its innovativeness, so it is inevitable to comprehensively identify the factors influencing its level of innovativeness (Makri et al., 2017). The vast majority of innovation research focuses on its antecedents, the conditions and processes enabling innovation, and the impact of innovation on organisational performance, but the impact of several areas on innovation and their relationship often remain unclear (Fu et al., 2015). According to the research findings of den Hertog et al. (2010) innovation is not yet sufficiently understood in a less technologically advanced environment, i.e. in the micro and small-sized enterprise sector. Verhees & Meulenberg (2004) and Raghuvanshi et al. (2019) stress that the international literature on innovation and innovativeness research is predominantly based on large companies and high-tech companies, and that only a limited number of studies examine innovation and innovativeness among small companies (Drucker, 2002; Ettlie & Rosenthal, 2011; Hyvärinen, 1990; Jaworski et al., 2000; Slater & Narver, 1998). In her research, Csath (2022) found that the performance of Hungarian small enterprises in the innovation ranking exceeds that of large companies, the main reason for which lies in the ownership of a significant part of large companies of foreign origin, which, however, are less innovative in Hungary than the innovativeness demonstrated in their 'mother country'. However, the research (Csath, 2022) does not cover the innovativeness of micro-enterprises. Furthermore, the results of research on innovation and innovativeness in large companies are difficult to use and generalise in the case of small companies (Dooley et al., 2017; Taghizadeh et al., 2018; Verhees & Meulenberg, 2004; Zawislak et al., 2018), as innovation in small and large companies is fundamentally different (Acs & Audretsch, 1988; Audretsch, 2001; Tether, 1998). Most empirical research on innovation determinants has been conducted in industrialized countries, but many researchers agree that the results of innovation reports in these countries cannot explain the innovative behaviour of enterprises in countries with less developed technological bases (Souitaris, 2002).

Literature review

The starting point for our literature review was a search in the Web of Science (WoS) Core Collection database. Based on the different spelling of 'organisational' and 'organizational' in British and American English, we searched for two terms: 'organisational innov*' and 'organizational innov*' – using an asterisk (*) allows one to search for 'innovation' and 'innovativeness' at the same time. The WoS Core Collection contained a total of 3,016 scientific papers between 1975 and 2022, of which 983 were Open Access publications. The number of publications on organisational innovation and organisational innovation gradually increased over the period under review, peaking in 2017 (313 publications) (Fig. 1).

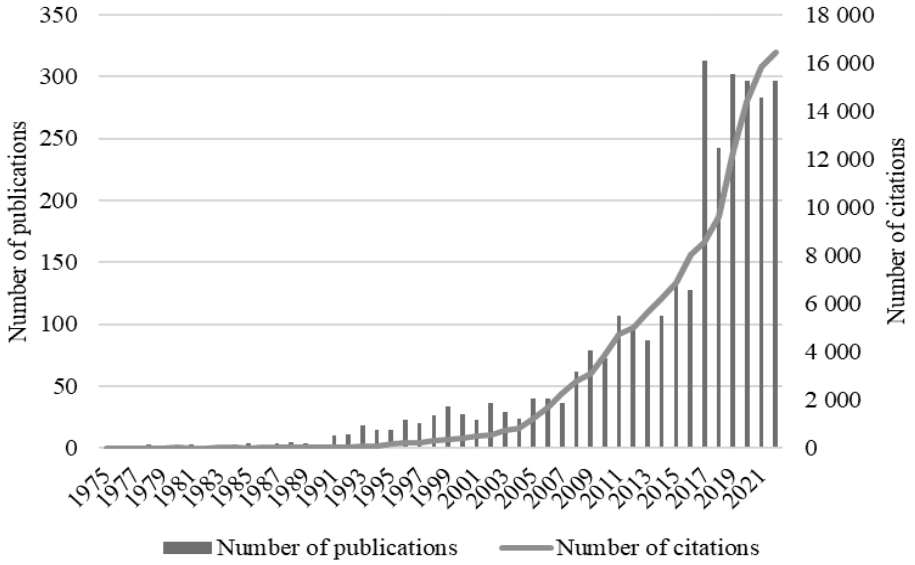

Fig. 1. Trends in the number of publications and citations on organizational innovation from 1975 to 2022

Source: Authors' analysis based on Web of Science Core Collection (n= 3 016)

The map visualizes journals in the field of organizational innovation, grouped by citation relationships. Each circle represents a journal, with its size indicating the number of citations, and the connecting lines show the strength of citation relationships between journals (thicker lines indicate stronger connections). The journals are clustered by common citations, with each cluster assigned a unique color by VOSviewer (Vnukova et al., 2024). These clusters highlight different thematic areas within organizational innovation, suggesting which journals are most interconnected and influential within the field based on citation patterns.

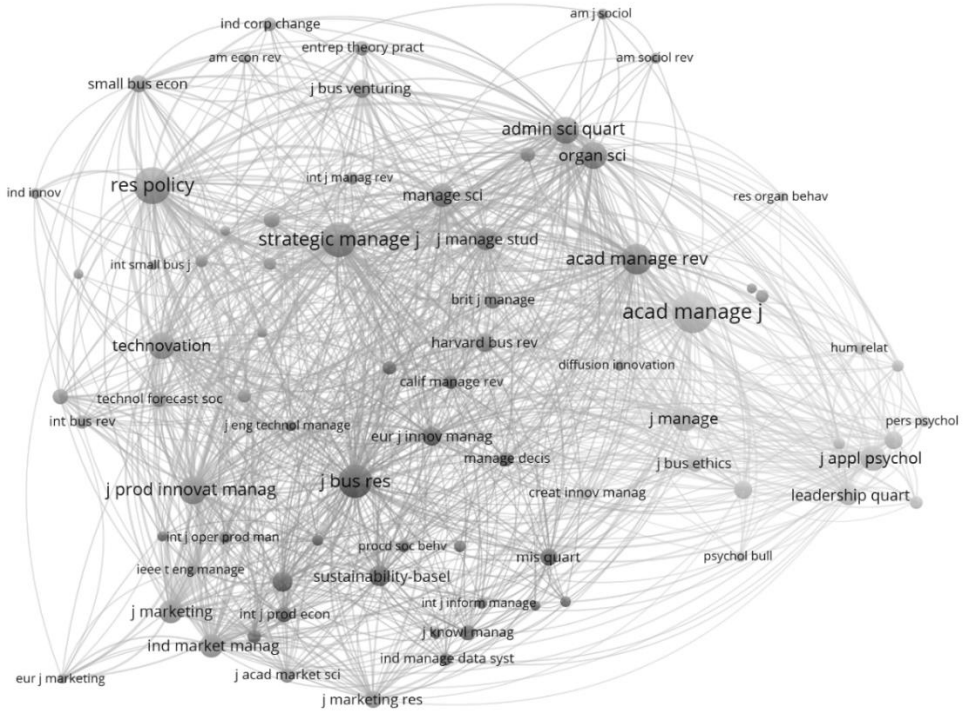

Fig. 2. Journal network of Open Access publications on organizational innovativeness
Source: Authors' analysis based on Web of Science Core Collection (n=983)

The network of keywords (Fig. 3) visualizes the keywords occurring in at least 30 publications on a common map. Thickness of the lines connecting the keywords indicates the frequency of co-occurrence. There are four clusters on the map, the keywords defining which clusters are as follows: (1) organizational innovation, red cluster, (2) performance and innovation, blue cluster, (3) knowledge, research & development, green cluster and (4) product innovation, yellow cluster.

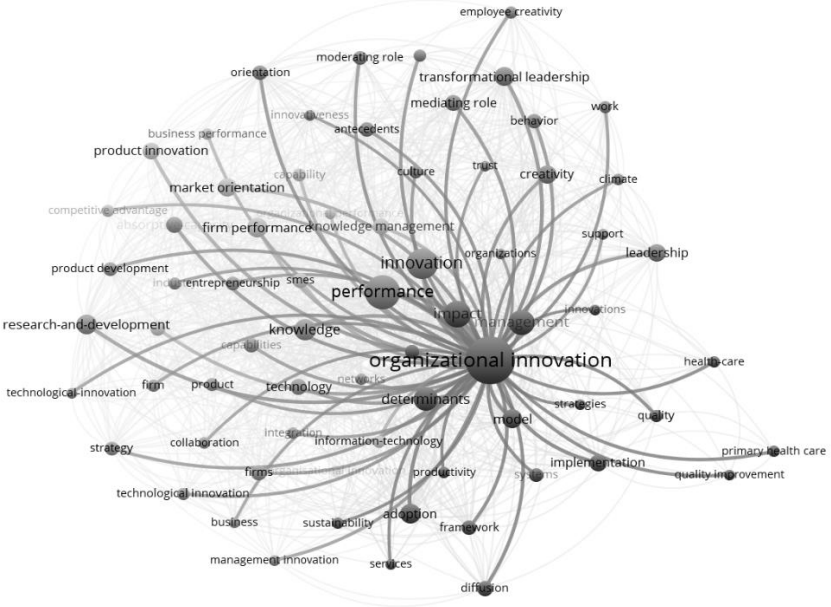

Fig. 3. Journal network of keywords of Open Access publications on organizational innovativeness
Source: Authors' analysis based on Web of Science Core Collection (n=983)

In our review of the WoS Open Access database, we examined 100 studies to see which factors researchers most often associate with innovation and innovativeness. During the study, other (or earlier) literature not included in the publications of WoS Open Access, but cited by literature with outstanding references, was also taken into account. The ten most common factors thus produced in proportion to their occurrence are shown in Fig. 4.

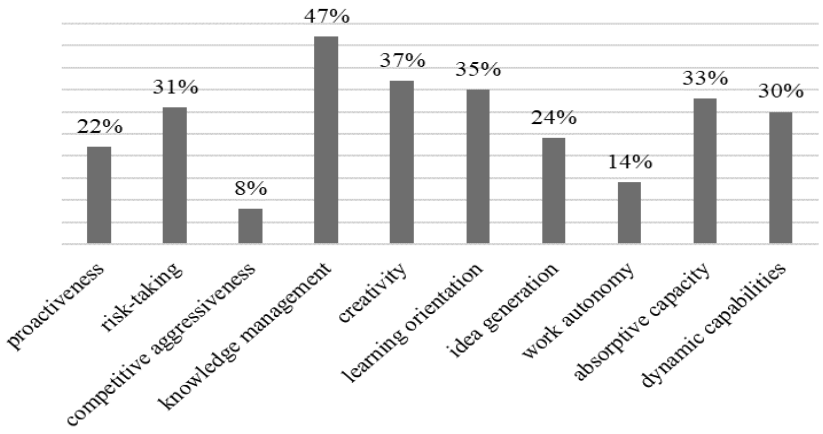

Fig. 4. Ten most common elements of adaptability and change capabilities of innovativeness based on literature research
Source: Authors' analysis based on Web of Science Core Collection (n=983)

Taking into account the factors identified during the literature search, the following hypotheses were formulated.

Proactiveness

Proactiveness and competitive aggressiveness embody qualities of entrepreneurship that drive entrepreneurs to act in favor of various innovations (Hult et al., 2004). Proactiveness helps you adapt to a changing environment by continuously monitoring it (C. L. Wang, 2008). According to the results of another research (Ejdys, 2016), proactiveness has a significantly positive effect on the development of innovativeness. Phuangrod et al. (2017) and Hamdan & Alheet (2020) found that proactiveness plays the most important role among the factors influencing the innovativeness of small businesses.

H1: Entrepreneurial proactiveness has a positive impact on employee innovation support (H1a) and openness to innovation (H1b).

Risk-taking

The most important elements of openness to innovation are risk appetite and creativity (Siguaw et al., 2006). Risk-taking is one of the most significant factors influencing the innovation of companies (Phuangrod et al., 2017; Smith et al., 2008). The innovativeness associated with entrepreneurship necessarily goes hand in hand with some degree of tolerance for risk (Covin & Slevin, 1991; Rhee et al., 2010; C. L. Wang, 2008). Risk-taking has been proven to be positively linked to (incremental) innovations implemented within the enterprise (Ejdys, 2016).

H2: The risk appetite of enterprises has a positive impact on employee innovation support (H2a) and openness to innovation (H2b).

Competitive aggressiveness

Proactiveness and competitive aggressiveness embody qualities of entrepreneurship that drive entrepreneurs to act in favor of various innovations (Hult et al., 2004). Stronger competitive aggressiveness is associated with a higher degree of innovation, which leads to higher company performance (Zacca et al., 2015). The ability of companies to create value is related to innovation and the competitive behavior of companies in an aggressive way (Hughes-Morgan et al., 2018). In their research, Panjaitan et al. (2021) demonstrated a significant relationship between innovativeness and competitive aggressiveness. Competitive aggressiveness is also a dominant factor within entrepreneurial attitudes and plays a significant role in bringing innovative products and services to the market by businesses (Paulus & Hermanto, 2022).

H3: Competitive aggressiveness positively influences employee innovation support (H3a) and openness to innovation (H3b).

Knowledge management

A common finding of several studies on identifying factors influencing the innovativeness of enterprises is that sharing knowledge has a positive effect on innovativeness (Al Mamun et al., 2016; Lin, 2007; Wang & Wang, 2012). Knowledge management is an important prerequisite for the ability to innovate (Ode & Ayavoo, 2020). Due to the impact of knowledge on competitive advantage, knowledge management is one of the most important areas of innovation (Rajapathirana & Hui, 2018). Knowledge management plays an essential role in sustainable innovations: if innovation is seen as a system or process, knowledge management acts as input (Abbas et al., 2020).

H4: Knowledge management has a positive impact on employee innovation support (H4a) and openness to innovation (H4b).

Creativity

Innovativeness very often means creativity, that is, the ability to create innovations (Hyvärinen, 1990). Innovation in the life of a company is nothing more than applied creativity (Khandwalla, 2006). The most important elements of openness to innovation are creativity and willingness to take risks (Siguaw et al., 2006). Creativity is linked to the first step in the innovation process, idea generation (Hülsheger et al., 2009; Zhou & Hoever, 2014). In an ever-changing environment, innovation and creativity play a particularly important role in businesses' business (Riivari & Lämsä, 2014). Innovation and organizational renewal very often arise from creative ideas (Ritala et al., 2020).

H5: Creativity has a positive impact on employee innovation support (H5a) and openness to innovation (H5b).

Learning attitude

Studies show that learning is an essential prerequisite for businesses' ability to innovate (Najafi-Tavani et al.,

2018). Innovation is closely linked to learning (Calantone et al., 2002; Smith et al., 2008), and learning attitudes have a significant influence on the innovation of an organization (García-Morales et al., 2012). Continuous learning supports the innovativeness of organizations (Riivari & Lämsä, 2014). An organization's ability to learn and its openness to learning is linked to the source of its innovation (Holtgrave et al., 2019). According to Abbas et al. (2020), there is evidence that organisations' capacity to learn and innovate are linked.

H6: Learning attitudes positively influence employee innovation support (H6a) and openness to innovation (H6b).

Idea generation

One of the factors influencing innovativeness is the ability to generate ideas (Smith et al., 2008). Innovation consists of two steps: generating new ideas and implementing them (Hülsheger et al., 2009). The competitive advantage of businesses requires innovation and new ideas (Holtgrave et al., 2019; Riivari & Lämsä, 2014).

H7: Idea generation has a positive impact on employee innovation (H7a) and openness to innovation (H7b).

Autonomy at work

Autonomy at work is necessary for the success of the company (Lumpkin & Dess, 1996). Studies show that job autonomy for workers has a positive impact on innovative behaviour in businesses (Ohly et al., 2006; Riivari & Lämsä, 2014). Autonomy at work is not only a prerequisite for a creative work environment (Nussbaum et al., 2021), but also makes workers more efficient and motivated to work and more willing to initiate innovative activities due to their own control over their work (Jankelová, 2022).

H8: Autonomy at work has a positive impact on supporting employee innovation (H8a) and openness to innovation (H8b).

Absorption capacity

The absorption capacity of enterprises is essential to support innovation (Müller et al., 2021). Absorption capacity is an essential element for the innovativeness of enterprises (Al Mamun et al., 2016). External information needed for innovation can be identified, absorbed and exploited by enterprises using their absorption capacity (Martínez-Román & Romero, 2017).

H9: Absorption capacity has a positive impact on employee innovation support (H9a) and openness to innovation (H9b).

Dynamic capabilities

To survive and prosper in changing circumstances, businesses need to develop dynamic capabilities that enable them to maintain competitive advantages (Mikalef & Pateli, 2017). Businesses with more efficient dynamic capabilities have a competitive advantage over their competitors with weaker dynamic capabilities (Eisenhardt & Martin, 2000). Dynamic capabilities are rooted in the process of product innovation (Benner & Tushman, 2003). Highly competitive businesses can use their dynamic capabilities to deliver product and process innovations (Wilden et al., 2013). Dynamic abilities play an important role in changing the competitive situation (Vu, 2020). Examining the correlation of dynamic capabilities with other dimensions may reveal why some companies are able to build competitive advantages for themselves in volatile market environments while others are unable to do so (Giniuniene & Jurksiene, 2015).

H10: Dynamic skills positively influence employee innovation support (H10a) and openness to innovation (H10b).

Supporting employee innovation

Employee innovation begins when employees formulate suggestions to improve the company's products, practices, and processes (Oldham & Da Silva, 2015). Workers who formulate suggestions and improvements in their workplace are among the most important resources of a business (Harrell-Cook et al., 2001). Employee innovation encompasses all behaviors aimed at creating, implementing and applying new ideas, processes, products and practices, whether for a single job, a group or an entire organization (De Spiegelaere et al., 2016). Employee innovativeness is therefore nothing more than the employee's behavior that directly or indirectly contributes to the creation and introduction of innovations (De Spiegelaere et al., 2014). Innovation in a business cannot happen without the active involvement and support of workers (Swaroop & Dixit, 2018).

H11: Fostering employee innovation positively influences openness to innovation.

Our research hypotheses were plotted on the theoretical model (Fig. 5).

Data and Method

Data

The constructions required for quantitative research were selected, translated and used from the international literature during the bibliometric analysis described in the chapter of the Literature Review with a planned sample size of at least 200 elements. In order to reach the target group as widely as possible, we chose the online questionnaire (Makri et al., 2017; Najafi-Tavani et al., 2018). The target population of the research was the owners and managers of Hungarian businesses. Data collection ran from June 12, 2023 to November 25, 2023. We did not want to delimit the circle of entrepreneurs surveyed either by geographical location, activity or any other criterion in order to obtain a heterogeneous sample covering the whole country, with the largest possible number of elements. To measure the adaptation and change capabilities of Hungarian enterprises, I used five-degree Likert scale statements (Seo et al., 2014; Soto-Acosta et al., 2015; Vanhala & Ritala, 2016). The lowest value on the scale, 1, corresponded to complete disagreement, and the highest, 5, corresponded to complete agreement with the statement. The questionnaire contained 67 mandatory statements (60) and questions (7). To measure all dimensions, we used the post-peer review Hungarian translation of the statement used for our own primary research of a study published in international journals. The questionnaire consisted of three main sets of questions: (1) input dimensions (statements 1 to 45), (2) output dimensions (statements 46 to 60) and (3) Sociodemographic section (questions 61 to 67).

Main characteristics of the sample

By the end of November 2023, the database contained a total of 523 questionnaires started, of which 207 responded fully to all 67 mandatory questions by the

head of a micro-enterprise or small enterprise, corresponding to an effective response rate of 40.35%. In the international literature, the ratio of 40.35% is considered good, so the research can be carried out on the obtained sample (Azar & Ciabuschi, 2017; Gölgeci & Ponomarov, 2015; Seo et al., 2014; Vanhala & Ritala, 2016).

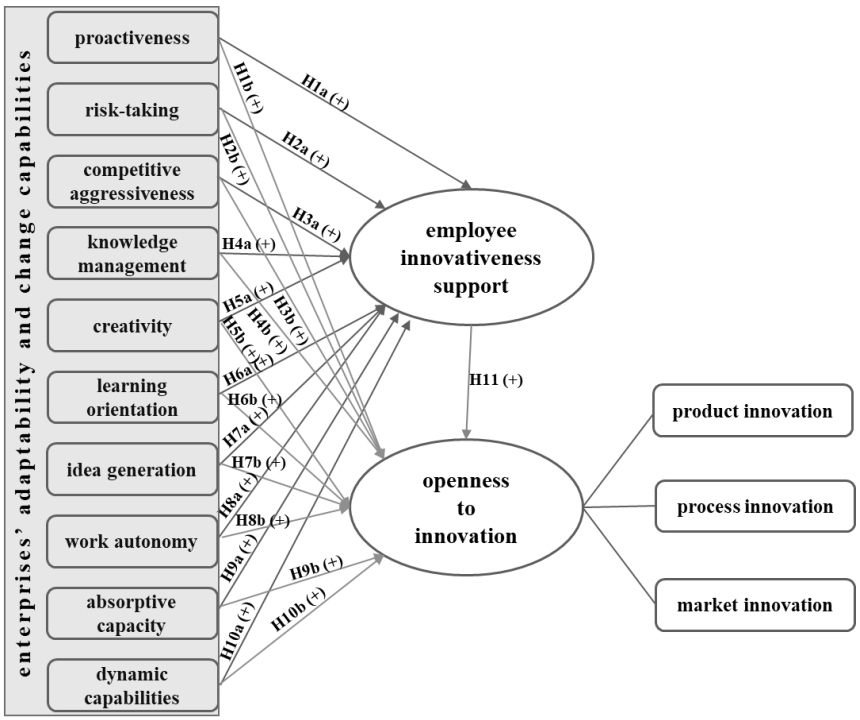

Fig. 5. Representation of research hypotheses
Source: Authors' research and edit

Method

At the next stage of research, the validity of the theoretical model of research was checked. The reliability of latent constructs measuring research dimensions was investigated by Confirmatory Factor Analysis (CFA) as part of Structural Equation Modeling (SEM) (Byrne, 2010). The reliability of latent structures was checked on the basis of the Cronbach's alpha indicator, a value above 0.7 indicated a satisfactory internal consistency of latent constructions (Cortina, 1993; Tavakol & Dennick, 2011).

Average variant extracted (AVE) and composite reliability (CR) were used to test the validity of latent constructs. The value of AVE indicates the average proportion of variances of statements that make up a given latent construct is concentrated in that artificial variable. A value of this indicator higher than 0.5 is considered acceptable(Baumgartner & Homburg, 1996; Hair et al., 2010). The CR indicator expresses the common variance ratio of the statements that make up each latent construct, and all latent variables in the model must reach 0.7 (Fornell & Larcker, 1981; Hair et al., 2010). If the AVE value does not reach the threshold value of 0.5, but the CR value exceeds 0.7, the reliability of latent structures is considered acceptable (Fornell & Larcker, 1981; Lam, 2012). For the fit indicators of the structural model, the following acceptance ranges were used. The absolute fit $\chi 2/df$ is usually below 3, although some experts believe that a value below 5 may be acceptable depending on the complexity of the model (Byrne, 2010). For the Root Mean Square Error of Approximation (RMSEA), acceptable value is usually below 0.08 (Hu & Bentler, 1999). Comparative Fit Index (CFI) and TLI (Tucker-Lewis Index) values of 0.9 were accepted (Hair et al., 2010). IBM SPSS Statistics 27.0 and AMOS 23.0 were used to run the scans.

Findings

The first step in processing the data was the validation of the statements (constructs) used in the questionnaire, which can be viewed in a summary table below (Table 1). Due to the low value of Cronbach's alpha (<0.70), the dimensions of knowledge management and idea generation were not included in the final model. Due to the low factor weight (<0.50), claims DYN-1, DYN-6, MRKT-2, MRKT-4 and PRDCT-3 were excluded.

The results of structural equation modeling

Basic fit indicators were used to assess the fit of the structural model (Table 3), including $\chi 2/df$, GFI, CFI, TLI and RMSEA. Based on the calculations, $\chi 2/df$ is 3.728, which is below the threshold of five (Hu & Bentler, 1999). The GFI, CFI and TLI values for the structural model were 0.904, 0.916 and 0.906, respectively, all within the acceptable range (Hair et al., 2014; Hu & Bentler, 1999). RMSEA's values were also found to be reliable as they were lower than the 0.08 threshold applied. All these fit indicators confirmed that the model fit is (Table 3).

Table 3. Structural model fit indicators

Fit indicators	X2/DF	p-value	GFI	CFI	TLI	RMSEA
Acceptance values for indicators	≤5	≤ 0.05	≥0,90	≥0,90	>0,90	≤ 0.08
Structural model	3,728	<0,001	0,904	0,916	0,906	0,079

Source: Authors' research and edit

Contrary to our preliminary assumption based on the theoretical model, the effect of proactiveness in supporting employee innovation (p=0.489) and openness to innovation (p=0.069) cannot be verified based on the results of the H1 hypothesis analysis, so hypothesis H1 has been rejected, which may have several reasons. Proactive businesses often seek to anticipate potential problems and, for example, business opportunities, that require quick solutions or reactions from the organization, but this does not necessarily involve an innovative approach, which requires a longer-term approach and a strategic way forward (Taylor et al., 2019).

The link between companies' willingness to take risks and their innovativeness cannot always be demonstrated, because although innovation often involves risks, not all risk-taking companies will also be innovative, just as risk-taking is not inherent in all innovative businesses. Risk taking is a characteristic and factor of an enterprise with a high risk appetite, which – especially in the case of a small company size primarily due to the personality of its owner or manager – can permeate the operation of the enterprise as a whole. Empirical research (Hyrsky & Tuunanen, 1999) on 456 U.S. and 434 Finnish businesses examined the relationship between risk-taking. As a result of their research, companies with detailed business plans have significantly higher risk appetite than companies without business plans, and the former are significantly more open to innovation (Hyrsky & Tuunanen, 1999). According to an empirical study of 532 businesses in Finland, risk-taking does not have a verifiable impact on innovation outcomes among family businesses, but innovation results were demonstrably higher for non-family businesses through risk-taking (Craig et al., 2014). However, other research has not shown a statistically verifiable relationship between one or more aspects of risk-taking and innovation (García-Granero et al., 2015; García-Piqueres et al., 2019). During our research, we confirmed mixed results: in the case of H2a, a weak medium positive effect can be verified, i.e. entrepreneurial risk-taking has a barely demonstrable effect on the support of employee innovation (Beta = 0.306, p<0.001), while in the case of openness to innovation (H2b) the same effect cannot be verified (p=0.283), so the H2 hypothesis was o

The link between competitive aggressiveness and innovation is not always evident either. Industry specificities, market environment, different types of innovations (radical – incremental), corporate strategy and cultural factors can all influence the relationship between competitive aggressiveness and innovation. The competitive aggressiveness of enterprises can be seen in fierce, fast, intensive actions, the main goal of which is to outperform competitors and push them out of the market, which is not necessarily accompanied by a long-term, strategic approach necessary for openness to innovations (Kollmann & Stöckmann, 2013). The 'pioneering' phenomenon associated with competitive aggressiveness is seen by some researchers primarily in terms of pricing, crowding competitors out of the market and gaining market penetration, rather than its relationship to innovation (Musawa & Ahmad, 2019). The lack of correlation between competitive aggressiveness and innovation can result from both low resource availability and fear of failure (Rahman et al., 2016). The results of the examination of the H3 hypothesis in our research are not consistent with the findings presented during the literature search (Panjaitan et al., 2021; Stambaugh et al., 2011; Sutejo & Silalahi, 2021; Zacca et al., 2015).

In our research, creativity has a weak, medium, positive effect on supporting employee innovation (Beta = 0.317, p<0.001) and a weak positive effect on openness to innovation (Beta = 0.248, p<0.001). The results of the study conducted on the sample on which our research is based are in line with both recent findings in the literature and findings from several decades ago (Amabile, 1988, 1997; Bassett-Jones, 2005; Borisov, 2022; Das, 2022; Sarooghi et al., 2015). If the surveyed companies are able to further develop their creativity, this will directly and positively influence the innovativeness of their organization – thus opening up new perspectives and directions for development and advancement that are currently unknown to companies (Hunter & Cushenbery, 2011).

The relationship between learning attitudes and innovation in enterprises is influenced by many factors. Learning can be primarily aimed at improving the effectiveness of established practices and processes, rather than introducing new ideas and learning new methods. Learning also makes less of a contribution to innovation even if it lacks development as a means of minimising risks and is limited to introducing incremental innovations. Corporate culture also plays an important role not only in learning, but also in openness to innovation. Accordingly, the results of international empirical research are also divided when examining the relationship between learning attitudes and innovation and innovation. In a primary research of 411 U.S. businesses, researchers (Baker & Sinkula, 1999) demonstrated a strong link between learning attitudes and innovation. In their empirical research of 82 small businesses in Tehran, Eshlaghy & Maatofi (2011) demonstrated the significant positive impact of learning attitudes on corporate innovation. However, in its empirical research of 150 businesses in Turkey, Calisir et al. (2013) were unable to prove the link between entrepreneurship's commitment to learning and

innovation. Thus, we can see that although there are different research results in the international literature for the dimension studied, the majority of researchers come to similar conclusions, but the results of our research are only partially consistent with them (Day, 1994; Rhee et al., 2010; Slater & Narver, 1995). In our research, learning attitudes do not influence employee innovation support (p=0.897), but have a demonstrably weak positive effect on openness to innovation (Beta = 0.090, p=0.039).

Workplace autonomy has a statistically verifiable, weak positive medium effect on supporting employee innovation (Beta = 0.333, p<0.001), which result is consistent with research result of Ohly et al. (2006). However, openness to innovation is demonstrably influenced negatively (Beta = -0.154, p=0.007), i.e. a higher level of autonomy in the workplace is associated with a lower openness to innovation in the sample examined. In other words, this result means that the higher the level of autonomy in the workplace in enterprises, the efforts to implement innovations are met with proportionately higher worker resistance, that is, autonomy in the workplace becomes partially counterproductive and hinders innovation (Burcharth et al., 2017; Yuorpor, 2013). Gebert et al. (2003) also confirmed this phenomenon in his empirical research involving 101 enterprises, drawing attention to the fact that autonomy in the workplace above a certain level implies a decline in innovation instead of a further increase. In our research, the H8 hypothesis shows a verifiable effect in both areas studied, however, due to its negative effect on openness to innovation, the H8 hypothesis was only partially accepted.

The absorption capacity of enterprises involves the recognition, reception, acquisition and exploitation of external knowledge, information and technologies. Innovation occurs in the life of a business when unmet consumer needs meet the knowledge required for a technological solution, and absorption capacity plays a role in this (Schweisfurth & Raasch, 2018). In their empirical research at employee level, Schweisfurth & Raasch (2018) processed data from more than 860 employees and demonstrated the positive effect of absorption capacity on employee innovation. In their empirical research involving 286 large companies in Spain, Cepeda-Carrion et al. (2012) demonstrated the extremely important determinant role of absorption capacity in developing the innovation of the companies studied. In our research, the examined sample is only in line with a part of the presented literature results: absorption capacity has no statistically verifiable relationship with employee innovation support (p=0.727), but has a weak medium positive effect on openness to innovation (Beta = 0.455, p<0.001).

The dynamic capabilities of businesses play a key role in changing their competitive position (Vu, 2020). In their primary research involving 235 small and medium-sized enterprises, Borch & Madsen (2007) have demonstrated that dynamic capabilities contribute demonstrably to innovation and growth-oriented strategies of enterprises. In their empirical research, Grünbaum & Stenger (2013) demonstrated a positive relationship between dynamic capabilities and innovation performance, but could not prove the relationship between dynamic capabilities and profitability. As a result of a secondary research, innovation is most closely related to dynamic capabilities after learning among the factors influencing corporate performance (Pezeshkan et al., 2016). In our research, we came to similar results. Dynamic skills have a statistically verifiable medium positive effect on supporting employee innovation (Beta = 0.588, p<0.001) and a moderately strong positive effect on openness to innovation (Beta = 0.677, p<0.001). The H10 hypothesis was accepted accordingly. Among the factors examined, the effect of dynamic abilities on employee innovation support and openness to innovation proved to be the strongest, which is in line with its significance revealed during literature research in both areas studied.

Table 4. Results of the SEM-analysis

Hypo-thesis	Factor	Target dimension	B	p-value	Verifiable effect
H1a	Proactiveness	Employee innovativeness support	-0.038	0.489	none
H2a	risk-taking		0.306	< 0.001	weak medium positive
H3a	competitor aggressiveness		-0.088	0.102	none
H5a	creativity		0.317	< 0.001	weak medium positive
H6a	learning attitude		-0.007	0.897	none
H8a	autonomy at work		0.333	< 0.001	weak medium positive
H9a	absorption capacity		-0.019	0.727	none
H10a	Dynamic capabilities		0.588	<0.001	medium positive
H1b	Proactiveness	Openness to innovation	0.082	0.069	none
H2b	risk-taking		0.063	0.283	none
H3b	competitor aggressiveness		0.033	0.451	none
H5b	creativity		0.248	< 0.001	weak positive
H6b	learning attitude		0.090	0.039	weak positive
H8b	autonomy at work		-0.154	0.007	weak negative
H9b	absorption capacity		0.455	< 0.001	weak medium positive
H10b	Dynamic capabilities		0.677	< 0.001	moderate strong positive
H11	Supporting employee innovation		0.057	0.548	none

Source: Authors' research and edit

The correlation between employee innovation support and openness to innovation can be influenced by a number of circumstances. Employee innovation can be supported formally or informally by an organization, but in the case of a conservative organizational culture or widespread resistance to change, employees are unlikely to be able to exploit and implement their innovative, creative ideas. The innovativeness of employees also depends on the resources provided by the organization and on their own personal motivations and attitudes. According to a study of 110 Indian businesses, organisational networking and organisational learning could only improve the competitiveness of businesses through the innovative capacity of employees (Husain et al., 2016). Research of 140 South Korean managers

confirmed the link between employee innovation support and organizational innovation performance (Dedahanov et al., 2017). Employee innovativeness manifests itself in idea generation, search for and communicate ideas, launching innovative activities and overcoming obstacles (Lukes & Stephan, 2017). In our research, supporting employee innovation has no statistically verifiable effect on openness to innovation (p=0.548). The results of modelling the structural equations are summarised in Table 4.

The result of the study of hypotheses is illustrated in Figure 6. Beta and p-values are shown in Figure 6, which is also present in the table above (Table 4), with the arrow not dashed when the statistical significance level ($p \leq 0.050$) is reached, and dashed when it is not reached ($p > 0.050$).

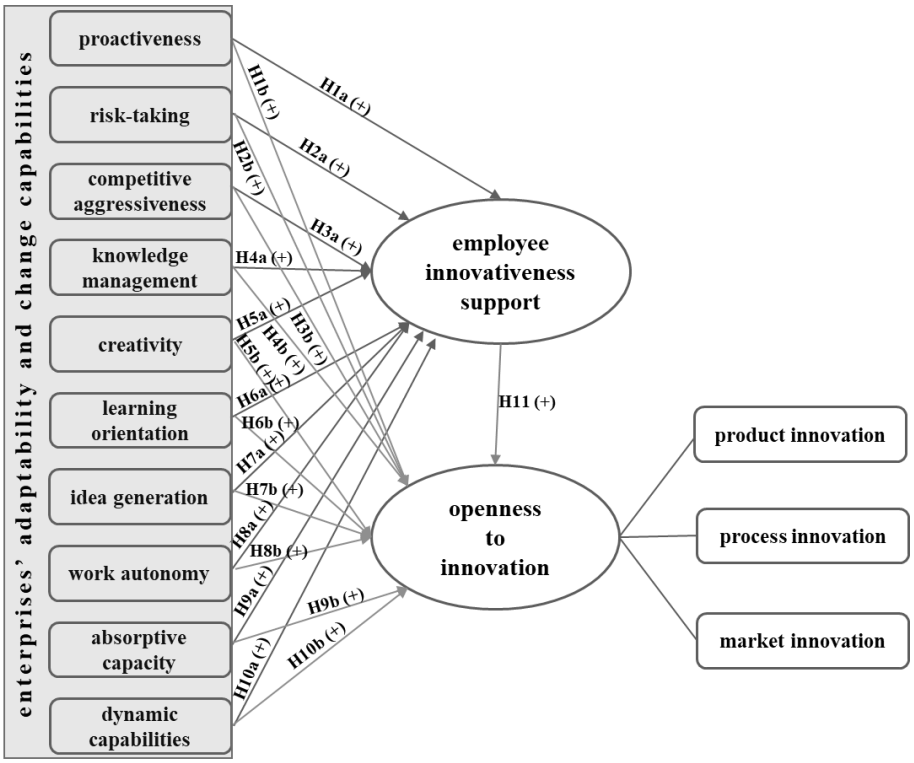

Fig. 6. The result of study hypotheses
Source: Authors' research and edit

Conclusions and recommendations

Conclusions

The examination of our research did not confirm the correlation between proactiveness and the support of employee innovation and openness to innovation (Ejdys, 2016; Nwugballa et al., 2016; Wach et al., 2023), which may be due to the lack of a long-term, strategic approach and cultural factors (Taylor et al., 2019).

The risk appetite study partially confirmed the findings of the literature (H2a) on its impact on supporting employee innovation (Craig et al., 2014; Giaccone & Magnusson, 2022; Hyrsky & Tuunanen, 1999), but the association with openness to innovation was not demonstrated in the sample (García-Granero et al., 2015; García-Piqueres et al., 2019). The reason for the mixed result may be that a company can behave innovatively without its owner or manager considering it to be particularly risk-taking, and it can take risks without implementing innovations, so it will not necessarily be innovative even if it takes real risks.

In the case of competitive aggressiveness, both hypotheses (H3a, H3b) were rejected, as we could not verify the claims (Hughes-Morgan et al., 2018; Zacca et al., 2015) and research results (Panjaitan et al., 2021) of the literature based on the sample. The lack of demonstrable link may result from the above-mentioned lack of strategic vision, divergent objectives for innovation (Kollmann & Stöckmann, 2013; Musawa & Ahmad, 2019) and aggressive market action, and limited financial opportunities specific to micro and small enterprises (Rahman et al., 2016).

In the case of creativity, however, both hypotheses showed some level of connection (Hülsheger et al., 2009; Riivari & Lämsä, 2014; Siguaw et al., 2006), a result that coincided with the results of research in similar directions even in the case of possible cultural differences (Amabile, 1997; Borisov, 2022; Das, 2022). We believe that this finding confirms the importance of creativity in innovation and widely recognized in the literature.

The study of learning orientation only partially confirmed the findings of the literature (García-Morales et al., 2012; Riivari & Lämsä, 2014): in the case of employee innovation support (H6a), the sample did not confirm a relationship (Calisir et al., 2013), while the dimension examined had a weak positive effect on openness to innovation (H6b) (Calantone et al., 2002; Holtgrave et al., 2019; Najafi-Tavani et al., 2018; Smith et al., 2008).

The examination of workplace autonomy confirmed a number of research findings (Huu, 2023; Jankelová,

2022; Ohly et al., 2006; Riivari & Lämsä, 2014, 2019), as the examined construction has a weak positive medium relationship with the support of employee innovation (H8a). It should be highlighted, however, that in the case of examining the relationship between workplace autonomy and openness to innovation, a weak negative effect was demonstrated (H8b), which is contrary to the frequent findings in the literature, as it means that a higher level of autonomy at work is combined with a lower level of openness to innovation among micro and small enterprises in Hungary. However, this result is not unique in the international literature, as previous and more recent empirical research has reached the same results as our research (Battistelli et al., 2013; Burcharth et al., 2017; Gebert et al., 2003).

Based on the sample, the absorption capacity of enterprises is only partially in line with the research results of the literature, as we could not demonstrate the support of employee innovation (H9a), while the study proved a weak medium positive effect (H9b) on openness to innovation (Akgün et al., 2019; Kanwal et al., 2022; Su et al., 2013). The relationship between employee innovation and absorption capacity was examined in several cases among large companies or at employee level (Cepeda-Carrion et al., 2012; Schweisfurth & Raasch, 2018). However, the applicability of research carried out in the field of innovation and innovation of large companies operating in Western states with advanced technologies and economies is hardly comparable to the results of innovation research carried out by micro and small enterprises in states with lower levels of development (Souitaris, 2002; Verhees & Meulenberg, 2004; Zawislak et al., 2018).

The dynamic ability of enterprises, calculated in the sample, had a medium positive impact on supporting employee innovation (H10a) and a moderately strong positive impact on their openness to innovation (H10b). The results of dynamic abilities are therefore in line with the research results of the literature (Benner & Tushman, 2003; Wilden et al., 2013), and among the dimensions examined, it proved to be the most significant dimension of the ability of enterprises to adapt and change (Ju et al., 2016; Pezeshkan et al., 2016; van de Wetering et al., 2021).

In the course of empirical research, we examined the impact of adaptation and change abilities on employee innovation support and openness to innovation. However, according to the sample study, the support of employee innovation does not have a statistically verifiable influence on openness to innovation (H11), so the research could not verify previous results of some literature (De Spiegelaere et al., 2016; Harrell-Cook et al., 2001; Oldham & Da Silva, 2015).

Recommendations

Based on the experiences and results of our research, we formulated the following recommendations:

Strengthening the innovation focus in micro and small enterprises: entrepreneurs should pay more attention to investment in innovation, as research shows that these companies can be more successful if they use proactive innovation strategies. It may be appropriate to monitor the emergence of new technologies and seek to make better use of existing technologies.

Managing autonomy at work: companies should use workplace autonomy with caution, as its excessive level can hinder openness to innovation, which may lead to resistance to innovation efforts.

Developing creativity: business leaders need to encourage employee creativity as it shows a positive impact both in supporting employee innovation and in openness to innovation. This can be improved by listening to employees' ideas, thinking about them in teamwork, developing them and rewarding proven, successful ideas.

Development of dynamic skills: companies need to develop their dynamic skills (environmental monitoring and analysis, learning and knowledge management skills, change management), which have proven to be the most important factors in the field of employee innovation and openness to innovation. Therefore, I recommend watching and learning about the best practice used in the industry, analyzing information about the operation of the business and learning from it. Dynamic capabilities are particularly important for companies not only to react to change, but also to proactively shape their environment and constantly innovate. Their development can contribute to the long-term success of companies in an increasingly changing and competitive market environment.

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Table 1. Validation of constructs

Code	Constructs	Mean (standard deviation)	Loadings	Cronbach's α	AVE	CR
Proactiveness		**3.97 (0.82)**		**0.809**	**0.625**	**0.896**
PROA-1	We are constantly monitoring the emergence of new technologies.	4.11 (0.87)	0.890			
PROA-2	We are constantly thinking about how we can make better use of existing technologies.	4.23 (0.89)	0.804			
PROA-3	Compared to our competitors, we are often the first to introduce a new method.	3.31 (1.18)	0.660			
Risk-taking		**3.31 (0.87)**		**0.738**	**0.497**	**0.833**
RISK-1	We encourage our employees to take risks with their new ideas.	3.41 (1.10)	0.760			
RISK-2	We evaluate new strategies and plans, even if we're not sure they'll work.	3.66 (0.97)	0.715			
RISK-3	In order to improve our offer, we are willing to accept a moderate risk even if it may result in a significant loss.	2.72 (1.14)	0.635			
Competitive aggressiveness		**3.09 (1.10)**		**0.855**	**0.608**	**0.909**
AGGR-1	We are willing to sacrifice profitability to gain market share.	3.03 (1.14)	0.533			
AGGR-2	We are willing to lower prices if we can gain market share.	3.29 (1.24)	0.884			
AGGR-3	Sometimes we lower the price of our products below the price level of the competition.	3.19 (1.40)	0.886			
AGGR-4	Sometimes we acquire new markets at the expense of cash flow and profitability.	2.72 (1.16)	0.762			
Creativity		**3,22 (0,94)**		**0.880**	**0.616**	**0.89**
CREA-1	The management encourages employees to think outside the box.	3.69 (1.02)	0.625			
CREA-2	Our employees strive to be the first to suggest new ideas for our products or services.	3.22 (1.09)	0.786			
CREA-3	Our employees think in new ways.	3.11 (1.05)	0.917			
CREA-4	Our employees are driven by creativity and innovation.	3.13 (1.10)	0.898			
Learning attitude		**3.90 (0.88)**		**0.883**	**0.659**	**0.93**
LEARN-1	The learning ability of our business is the key to our competitive advantage.	3.76 (1.04)	0.863			
LEARN-2	Learning is one of the core values of our business as the key to development.	3.83 (0.99)	0.927			
LEARN-3	We see employee learning as an investment, not an expense.	4.22 (0.89)	0.644			
LEARN-4	In our business, we see learning as a key commodity that guarantees the survival of the company.	3.98 (1.06)	0.785			
Autonomy at work		**3.16 (1.02)**		**0.856**	**0.610**	**0.912**
WRKAUT-1	Our employees schedule their work themselves.	3.16 (1.22)	0.922			
WRKAUT-2	Our employees shape their own priorities.	2.86 (1.15)	0.866			
WRKAUT-3	Our employees choose their own method of work.	3.13 (1.27)	0.701			
WRKAUT-4	We give our employees the opportunity to try out new ideas.	3.86 (0.99)	0.592			
Absorption capacity		**3.45 (0.98)**		**0.840**	**0.655**	**0.911**
ABSCAP-1	We regularly use new technologies for our new products.	3.61 (1.11)	0.820			

Code	Constructs	Mean (standard deviation)	Loadings	Cronbach's α	AVE	CR
ABSCAP-2	We can easily start applying technology to our new products/services.	3.60 (1.07)	0.812			
ABSCAP-3	We often bring new products or services to market.	3.13 (1.18)	0.795			
Dynamic capabilities		**3.62 (0.92)**		**0.911**	**0.566**	**0.944**
DYN-2	We monitor best practices in our industry.	4.32 (0.80)	0.520			
DYN-3	We collect economic information about our operations and the environment in which we operate.	4.11 (0.95)	0.580			
DYN-4	We invest in finding solutions that affect our consumers.	3.59 (1.04)	0.673			
DYN-5	We are beginning to apply existing best practices in our industry.	4.05 (0.92)	0.654			
DYN-7	We have developed new management methods over the past 5 years.	3.43 (1.20)	0.867			
DYN-8	We have developed new or substantially changed marketing methods and strategies over the past 5 years.	3.27 (1.29)	0.834			
DYN-9	We have significantly renewed our business processes in the past 5 years.	3.54 (1.14)	0.892			
DYN-10	In order to achieve our goals, we have introduced new or substantially changed methods in the last 5 years.	3.51 (1.16)	0.895			
Supporting employee innovation		**3.69 (0.87)**		**0.896**	**0.567**	**0.901**
BHVR-1	We support our employees when they want to try new methods.	3.90 (0.93)	0.795			
BHVR-2	Our company tolerates employees who do things differently.	3.44 (1.00)	0.770			
BHVR-3	We are willing to try new methods and look for unusual solutions.	3.99 (0.92)	0.663			
BHVR-4	We encourage our employees to think and behave in original and new ways.	3.48 (1.10)	0.776			
Openness to innovation		**3.25 (0.94)**		**0.924**	**0.460**	**0.917**
PRCSS-1	We are constantly improving our business processes.	3.76 (1.04)	0.670			
PRCSS-2	Our company has developed many new management approaches over the past five years.	2.98 (1.16)	0.667			
PRCSS-3	If we cannot solve a problem with conventional methods, we use new methods.	4.13 (0.97)	0.503			
PRCSS-4	We change our production or service methods significantly faster than our competitors.	3.15 (1.08)	0.619			
PRDCT-1	Compared to our competitors, we have introduced more innovative products and services in the last five years.	3.41 (1.13)	0.761			
PRDCT-2	Our new products and services are often seen by consumers as something new.	3.32 (1.13)	0.753			
MRKT-1	Compared to our competitors, the latest marketing program of our products is revolutionary in the market.	2.38 (1.20)	0.650			
MRKT-3	When it comes to introducing new products and services, our company is often at the forefront of technology.	3.14 (1.28)	0.763			

Source: Authors' research and edit

Table 2. Verification of discrimination validity by Fornell-Larcker criteria

Appellation	Proactiveness	Competitive aggressiveness	Creativity	Learning attitude	Work autonomy	Absorptive capacity	Dynamic capabilities	Risk-taking	Employee innovativeness support	Openness to innovation
Proactiveness	0.791									
Competitive aggressiveness	0.277	0.780								
Creativity	0.531	0.333	0.785							
Learning attitude	0.665	0.310	0.697	0.812						
Work autonomy	0.305	0.257	0.576	0.498	0.781					
Absorptive capacity	0.657	0.464	0.538	0.665	0.442	0.809				
Dynamic capabilities	0.592	0.391	0.543	0.578	0.386	0.564	0.752			
Risk-taking	0.615	0.328	0.668	0.671	0.459	0.595	0.627	0.705		
Employee innovativeness support	0.501	0.274	0.692	0.613	0.606	0.518	0.711	0.674	0.753	
Openness to innovation	0.691	0.435	0.655	0.693	0.396	0.731	0.723	0.685	0.687	0.678

Source: Authors' research and edit

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