

Theses of the doctoral (PhD) dissertation

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**EXAMINING ORGANIZATIONAL AGILITY
AMONG HUNGARIAN FOOD INDUSTRY COMPANIES**

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1 INTRODUCTION AND OBJECTIVES

1.1 Research background, relevance and problem statement

The Heraclitean metaphor “Pantha rhei – everything flows” refers to the notion that everything is in a constant state of change and that one cannot step into the same river twice. In today’s fast-changing environment, this idea may be more relevant than ever. Apparent states of stability—whether economic, market-related, or political—are often illusory; situations can radically change in a short period. The VUCA environment has become part of everyday life (Lawrence, 2013). This complex concept was first used by the U.S. Army during the Cold War to describe the conditions experienced by military leaders on the battlefield and the rapidly changing geopolitical circumstances of the time (Whiteman, 1998). Corporate management and leaders adopted the term to describe chaos and the turbulent business environment (Bennett & Lemoine, 2014). The acronym VUCA (Bawany, 2018) stands for volatility, uncertainty, complexity, ambiguity and succinctly summarizes the challenges faced by organizations (Sullivan, 2012). According to McCann, Selsky, and Lee (2009), three types of business environment changes can be observed: episodic, continuous, and disruptive, with the latter being the most difficult to anticipate. Bower and Christensen (1995) developed the theory of technological disruptive innovation, highlighting that certain innovations create entirely new markets or fundamentally transform existing ones (examples include the 1908 T-model, or more recently, Apple iPhone, Facebook, Spotify, Netflix, and Uber). These effects erode organizational knowledge and corporate competitiveness (Grant, 1996). The Fourth Industrial Revolution blurred the boundaries between the physical, digital, and biological worlds, and today we are in the era of Industry 5.0 (Alves, Lima & Gaspar, 2023). While Industry 4.0 focused on technology—digitalization, automation, AI development, and data-driven operations—Industry 5.0 emphasizes the human aspect. Its principles are resilience (both human and process), sustainability (considering environmental and social aspects during production), and human-centricity (employee well-being and its positive impact on corporate performance). At the same time, the VUCA concept is already considered outdated. When describing today’s world, we refer to the BANI framework, introduced by futurist Jamais Cascio in 2020, which highlights that the focus has shifted from traditional dimensions of uncertainty and unpredictability to new factors: the world is now Bounded, Ambiguous, Non-linear, and Incomprehensible (Bushuyev, Piliuhina, & Chetin, 2023). This implies limited resources, ambiguous situations, non-proportional cause-effect relationships, and events

whose complexity exceeds human comprehension. Cascio emphasized that this global and personal transformation requires new ways of thinking and perspectives.

The concept of organizational resilience has emerged as the new normal (Evenseth, Sydnes & Gausdal, 2022), reflecting an organization's capacity to respond and adapt to situations through novel solutions (Meintjes & Hofmey, 2018). According to Weick (1993), resilience is a combination of coping skills and improvisation. These actions, however, are primarily reactive. Although organizations learn and develop through resilient actions and recovery, this alone may not suffice to maintain competitiveness. The VUCA/BANI environment also presents opportunities. Recurring crises, globalization, and the Industry 4.0 and 5.0 decades have continuously pushed organizations to adapt and develop. Maintaining a real competitive advantage now requires proactive action, supported by appropriate organizational factors, capabilities, and practices. This leads to the concept of organizational agility. Organizational agility refers to the competence to adopt an innovative mindset, maintain continuous attention, and rapidly adapt and allocate resources in response to change (Harraf et al., 2015). It is the deliberate and purposeful action of management, which sharpens perception, ensures strategic and innovative development, and maximizes resource flexibility (Doz & Kosonen, 2010). While organizational resilience and agility are distinct characteristics, both are necessary to sustain long-term competitiveness: agility builds the future, whereas resilience secures present operations. Although organizations recognize the importance of resilience and exhibit it to varying degrees, a resilient organization is not necessarily agile. Agility represents stable dynamism, constant readiness for change, and a future built in the present. Achieving organizational agility requires deliberate actions and allocated resources, including understanding and measuring the factors that influence it. As Csath (2024) notes, "there is no universally applicable approach to competitiveness for all organizations". Management directly affects this dimension of competitiveness. Different approaches exist to define organizational agility, and there is significant ambiguity regarding concepts and their components (Walter, 2021). Previous research is complicated by the lack of clear definitions and systematic organization of dimensions (Teece, Pisano & Shuen, 1997; Overby, Bharadwaj & Sambamurthy, 2006). Therefore, I aimed to clarify conceptual frameworks and identify dimensions influencing organizational agility, as well as develop a model that contributes both theoretically and practically to organizations (Doz & Kosonen, 2010). My research focuses on organizational agility as a future-oriented determinant of corporate competitiveness. While agility originated in project management and software development, it has increasingly appeared in strategic management literature, yet its dimensional structure and long-term impact

on competitiveness remain relatively unexplored (Sherehiy, Karwowski & Layer, 2007). Thus, further scientific investigation of the concept is both timely and necessary.

In my empirical study, I examined organizational agility in Hungarian food manufacturing companies, exploring the influencing factors with the aim of developing a measurement model to enhance competitiveness. Although numerous studies have investigated competitiveness in the Hungarian food sector, this research focused on management-influenced agile organizational characteristics rather than a full analysis of sectoral competitiveness. Macro indicators such as the declining contribution to GDP and low value-added production suggest limited improvement in competitiveness. Ownership structure and regulatory constraints further affect flexibility. These analyses imply that Hungarian food companies possess some degree of resilience, while their agility capabilities may be limited.

The research is primarily theoretical, aimed at establishing a conceptual framework and a measurement model. Although the empirical study provided practical insights, limitations in population access and sample size constrained the scope and depth of analysis. The study did not attempt a comprehensive assessment of Hungarian food manufacturers' competitiveness, focusing instead on agile organizational features under management control, allowing for detailed analysis of dimensions and relationships within methodological limits.

1.2 Structure of the Dissertation and identification of the Research Gap

Structure of the Dissertation

After presenting the research topic and objectives (Chapter 1, 2), Chapter 3 provides a comparative analysis of organizational agility and organizational resilience. This chapter also introduces the theoretical foundation of my conceptual model, followed by its operationalization. Chapter 4 outlines the methodology of the empirical research, **and** Chapter 5 presents the research findings. Finally, the dissertation concludes with a discussion of the conclusions and the new scientific contributions.

Identification of the Research Gap

Most research on organizational agility has largely focused on technology and software companies, primarily examining agile project management and development methodologies, which are not fully adequate for addressing the topic of organizational agility itself. International studies specifically on organizational agility are scarce. In Hungary, only a dozen studies were identified, and these also focused mainly on agile project management. Szabó and Ribényi (2018) analyzed agile methodologies applied in software development. Vaszkun and

Sziráki (2013) reviewed publications from the past five years on corporate agility, discussing agile culture, leadership, structure, and rituals. Sándor-Dobos and Farkas (2018) investigated agile mindsets and team resilience in agile project management within software development. Gyurákovics (2021) reviewed the evolution of the concept of agility. János Varga (2014) interpreted agility as business agility, considering it a foundation of competitiveness. Olasz (2022) examined agile practices in Hungarian IT companies during the pandemic. Klimkó (2014) analyzed the first two decades of agile approaches in manufacturing, software development, and project management. Székely (2022) and Tóth & Csiszárík-Kocsir (2020) conducted comparative analyses of agile and waterfall project management.

Based on the literature, I identified both methodological and conceptual research gaps:

1. Limited review studies exist describing organizational agility
2. Diverse perspectives on agility have been applied, resulting in no widely accepted or standardized methodological tool for measuring organizational agility, limiting quantitative comparison and practical application.
3. No empirical research on organizational agility has been conducted in Hungary, and therefore, no Hungarian conceptual framework exists.
4. Measurement of organizational agility in the Hungarian food industry has not yet been carried out.

1.3 Defining the research process

The following section outlines the steps undertaken in the preparation of this dissertation (Figure 1). As the first step of the research, I identified research gaps in the scientific discourse by reviewing relevant literature and existing theories. Based on this review, the research questions and objectives were formulated. Next, an extensive review of the international literature was conducted, which allowed for clarifying the concept of organizational agility and understanding different scholarly approaches. Subsequently, a systematic review of the international literature was carried out using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) methodology. The outcomes of this systematic review served as the foundation for developing a conceptual framework and a theoretical model, which summarized the relationships among the dimensions of organizational agility and their impact on competitiveness. Based on this theoretical framework, the research hypotheses were formulated. Following the hypothesis development, the model was operationalized by converting conceptual dimensions into measurable variables. Simultaneously, appropriate methods for the empirical research were selected, taking into account the characteristics of the target population, sampling possibilities, and practical

constraints in data collection. During the empirical research, the planned data collection procedures were applied, and the validity of the hypotheses was tested through statistical analysis of the collected data. After summarizing and evaluating the empirical results, potential directions for future research were proposed, aimed at extending the study and exploring additional dimensions. Finally, the new scientific contributions were presented, providing theoretical insights into the study of organizational agility and resilience, as well as practical relevance for management. This structured, step-by-step research process ensured that the dissertation meets the academic standards of a doctoral thesis while enabling the simultaneous investigation of theoretical and practical aspects.

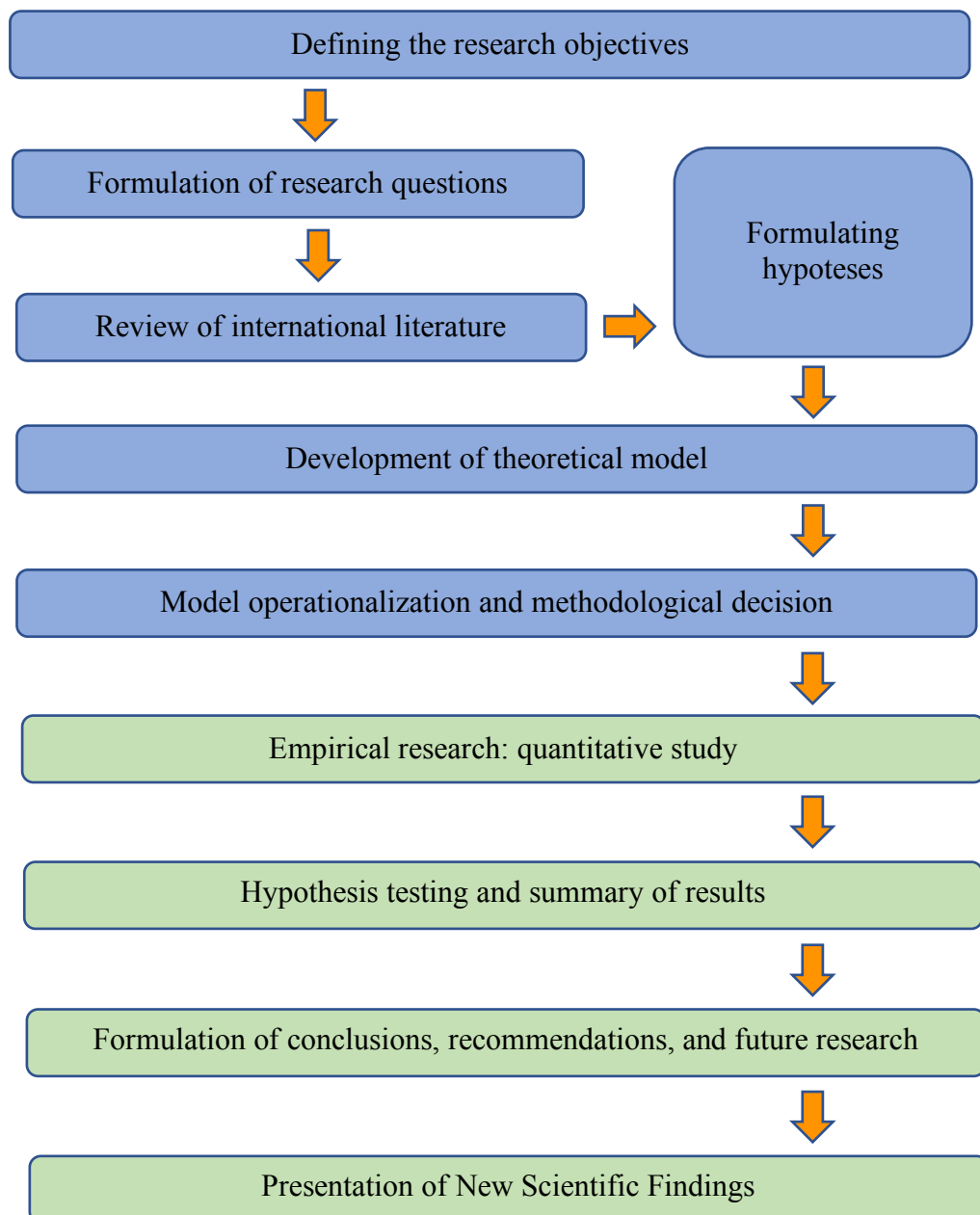


Figure 1. **Flowchart of the Dissertation Preparation Process**

Source: Author's own elaboration

1.4 Research objectives

The research objectives, questions, and corresponding methods—based on the review of international literature—are summarized in the table below (**Table 1**).

Table 1. Research objectives, questions and methods

Objectives Research questions		Methods
O1.	Conducting a Comparative Analysis of Organizational Agility and Organizational Resilience.	Literature Review
Q1.	<i>What are the differences and similarities between organizational agility and organizational resilience in scholarly approaches?"</i>	
O2.	Clarification of the Concept of Organizational Agility and Development of Its Hungarian Terminology through the Systematization of Diverse Scholarly Approaches.	Systematic Literature Review
Q2.	<i>How can the conceptual framework used in the international literature be adapted to the Hungarian linguistic context?</i>	
O3.	Identification of the Factors Constituting Organizational Agility, Development of a Theoretical Model, and Its Operationalization.	Systematic Literature Review Model Development
Q3.	<i>What direct and indirect effects can be identified in the measurement of organizational agility?</i>	
O4.	Examination of the Theoretical Model for Measuring the Constituent and Influencing Factors of Organizational Agility in the Context of the Hungarian Food Industry.	Quantitative Research PLS-SEM Analysis
Q4.	<i>How do managers of Hungarian food industry companies assess organizational agility within their organizations, as well as the factors influencing it?</i>	

Source: Author's own compilation

Using a systematic literature review, I aimed to organize and compare studies examining organizational agility and the measurement methods applied. In the absence of Hungarian empirical research, the goal was to establish a conceptual framework—originally developed in English—adapted to the Hungarian language. Furthermore, I set out to identify the factors influencing organizational agility, which would serve as the basis for developing a theoretical model suitable for measuring organizational agility. Finally, I planned to conduct an empirical quantitative study, for which I intended to design my own questionnaire based on adapted question sets from validated instruments used in international studies.

2 MATERIAL AND METHOD

2.1 Bibliometric and Systematic Literature Review

Considering that no comprehensive scientific study has yet compared organizational agility and organizational resilience, and that the concept of organizational agility currently lacks a unified, consensus-based definition, I conducted a bibliometric analysis and systematic literature review to achieve research objectives C1 and C2.

Relevant scientific sources were selected following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines (Page et al., 2021). The search was conducted in the Web of Science Core Collection database using predefined keyword combinations (Narong & Hallinger, 2023). Non-relevant and non-open-access studies were excluded. Following the screening, a bibliometric analysis was performed using VOSviewer software (van Eck & Waltman, 2009), which enabled the identification of relationships among keywords, author collaborations, and thematic clusters. For studies focusing on organizational agility, a systematic literature review was applied (Snyder, 2009), aiming to explore the interpretative frameworks and dimensions of the concept.

As a result of the analysis, I identified the dimensions that play a decisive role in shaping organizational agility. These dimensions were subsequently integrated into the theoretical model developed in this research (Podsakoff et al., 2003).

2.2 Development of the Research Model and Hypothesis Formulation

The theoretical model is composed of seven dimensions—sensing, evaluation and transformation, perceived data quality, organizational flexibility, organizational culture, and innovation capability—as well as four background factors (Figure 2). During the operationalization of the model, I examined the effects of these dimensions and background factors on organizational agility, thereby validating the model's empirical applicability (Aguilera et al., 2024).

Based on this framework, the following hypotheses were formulated:

- H1: A higher level of sensing positively influences organizational agility.
- H2: More accurate evaluation of information positively affects organizational agility.
- H3: Higher-level transformation positively impacts organizational agility.
- H4: Perceived data quality and its advanced utilization positively influence organizational agility.
- H5: Higher organizational flexibility has a positive effect on organizational agility.
- H6: A collaborative organizational culture positively affects organizational agility.

- H7: Stronger innovation capability positively influences organizational agility.
- H8: The geographical location of companies (regions) affects the level of organizational agility and its determining factors.
- H9: The ownership structure of companies (Hungarian, foreign, or mixed ownership) influences the level of organizational agility and its determining factors.
- H10: Organizational structure (linear, functional, divisional, matrix) affects the level of organizational agility and its determining factors.
- H11: Different company sizes (small, medium, large) have varying effects on the level of organizational agility and its determining factors.

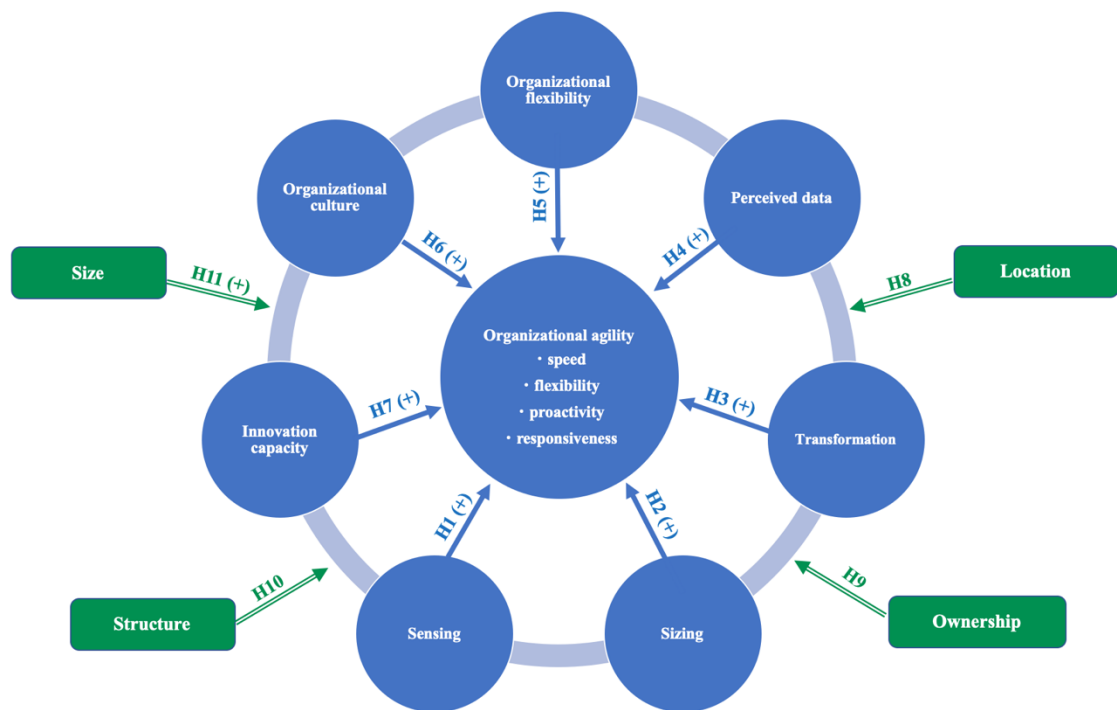


Figure 2. **Hypothesis Framework of the Research Model**

Source: Author's own elaboration

2.3 Methodological Foundations of the Empirical Research

The purpose of the quantitative study was to achieve research objectives C3 and C4 and to answer research questions K3 and K4. The primary aim of the study was to explore relationships and validate them statistically (Kinnear & Davies, 2025). Accordingly, a quantitative research methodology was employed, allowing the quantification of relationships, objective data collection, and the drawing of statistical inferences (Babbie, 2014).

The constructs of the theoretical model were selected from validated questionnaire blocks used in international empirical studies, organized as follows:

1. Organizational agility as the target dimension: 4 items (Troise et al., 2022).
2. Sensing dimension: 3 items (Alsos et al., 2007)
3. Evaluation dimension: 3 items (Alsos et al., 2007)
4. Transformation dimension: 3 items (Alsos et al., 2007)
(Dimensions 1, 2, and 3 represent the decomposition of dynamic capabilities into three sub-dimensions.)
5. Perceived data quality dimension: 4 items (Wanasida et al., 2021)
6. Organizational flexibility: 4 items (Verdu & Gómez-Gras, 2009)
7. Organizational culture: 4 items (Sashkin & Rosenbach, 1990)
8. Innovation capability dimension: 4 items (Giordino et al., 2025)

Data for the empirical research were collected through a self-administered questionnaire. The online questionnaire was developed using LimeSurvey software. Data collection took place between December 2, 2024, and February 28, 2025.

No prior empirical research on organizational agility and its construct dimensions exists in Hungary, and only a limited number of studies are available internationally. This is particularly true for the manufacturing sector, and specifically for Hungarian manufacturing companies, where such studies have not been previously conducted. To ensure sectoral diversity within the sample, the Hungarian Central Statistical Office (KSH) industry classification was applied so that all relevant sectors were represented among respondents.

The sampling frame was provided by the LinkedIn professional networking platform, which enabled direct access to the target population—company managers and owners. Only members of corporate management or owners were eligible to participate, as they possess comprehensive knowledge of various aspects of organizational operations.

2.4 Methodology of Structural Equation Modeling (SEM)

The aim of the study was to explore the relationships among variables influencing organizational agility. To achieve this, Structural Equation Modeling (SEM) was applied, a statistical technique that enables the empirical testing of complex theoretical models (Byrne, 2010). The primary goal of SEM is to examine how latent constructs influence each other and how they are represented through the indicators measuring them.

The model I developed consists of two complementary sub-models: the measurement model and the structural model. The measurement model (Devinney et al., 2008) operationalizes the latent constructs, indicating how theoretical variables are captured through measurable indicators. Due to the model's complexity and the exploratory nature of the research, PLS-SEM (Partial Least Squares Structural Equation Modeling) was employed. The rationale for

choosing PLS-SEM includes: the model is complex and contains both reflective and formative constructs; the target population is a specialized and hard-to-reach group (executives and owners of Hungarian food industry companies); and the sample size is limited, making PLS-SEM a more robust approach.

For the reflective target dimension—organizational agility—the following indices were used to assess internal reliability and validity:

- Cronbach's alpha: measures internal consistency and the extent to which indicators consistently measure the construct.
- Composite reliability (CR): indicates the proportion of shared variance among indicators forming a latent construct.
- Average Variance Extracted (AVE): expresses the extent to which a latent construct explains the variance of its indicators.

For formative constructs, the criteria suggested by Hair et al. (2021) were applied: testing the statistical significance of indicator weights (outer weights) using t- and p-values, and checking for multicollinearity using the Variance Inflation Factor (VIF). VIF values indicate the correlation among indicators; excessively high values suggest redundancy, which could bias the interpretation of the construct.

The structural model examines the relationships between organizational agility (as the target variable) and the influencing dimensions. Path coefficients (β) were used to analyze the effects, indicating the strength and direction of direct relationships between variables (Bollen, 2002). To explore differences among company groups based on background factors—company size, geographical location, organizational structure, and ownership type—the Kruskal–Wallis nonparametric test was applied (Katz & McSweeney, 1980). This statistical procedure was justified by the results of the Kolmogorov–Smirnov test (Massey, 1951), which indicated that the distribution of several variables significantly deviated from normality.

3 RESULT AND DISCUSSION

3.1 Results of the Bibliometric Analysis and Systematic Literature Review

Based on the reviewed literature, it was possible to develop a conceptual framework for organizational agility, which laid the foundation for further theoretical and empirical analyses. Following the conceptual clarification, I identified the factors that influence the development of organizational agility. Based on these factors, I constructed the conceptual research model, which integratively encompasses seven dimensions capturing various aspects of organizational functioning—organizational flexibility, perceived data quality, sensing, evaluation, transformation, innovation capability, and organizational culture—as well as four background factors (company size, geographical location, ownership type, and organizational structure) that indirectly influence the phenomenon through the organizational context.

This model structure enables a comprehensive, multi-level analysis of organizational agility and provides a basis for subsequent empirical investigations. The model contributes not only to a deeper theoretical understanding of the concept but also offers practical guidance for organizational development and strategic decision-making.

3.2 Dimensions of the Measurement Model and Assessment of Their Reliability

The purpose of the measurement model applied in this study was to assess the reliability and validity of the latent constructs. The model consisted of two parts: the target dimension (organizational agility) was measured reflectively, while the model-forming dimensions were measured formatively. Organizational agility was operationalized along four main characteristics: speed, flexibility, proactivity, and responsiveness.

Based on the confirmatory factor analysis results, most indicators had loadings above 0.7, with the lowest value being 0.678, which is still considered acceptable. The indicators significantly represent the organizational agility construct, thus reliably reflecting the content of the concept under investigation. Reliability indices were as follows:

- Cronbach's alpha: 0.755 – indicating adequate internal consistency
- Composite Reliability (CR): 0.844 – indicating high construct reliability
- Average Variance Extracted (AVE): 0.576 – indicating adequate convergent validity

For the formative measurement of the seven dimensions, several indicators did not reach the 0.20 weight threshold and were therefore excluded due to their weak contribution. Based on t-statistics and p-values, most indicators contributed statistically significantly to the measurement of the constructs ($t > 1.96$; $p < 0.05$). Indicators that did not meet this criterion were also removed.

The assessment of multicollinearity is an important element in evaluating the formative model, as it assumes that indicators are not highly correlated. VIF values for all dimensions remained below 5, which is within the acceptable limit and does not indicate a problem.

The results of the structural model are illustrated in Figure 3. The values assigned to the arrows connecting the dimensions represent standardized regression coefficients (β), indicating the strength and direction of the relationships between variables.

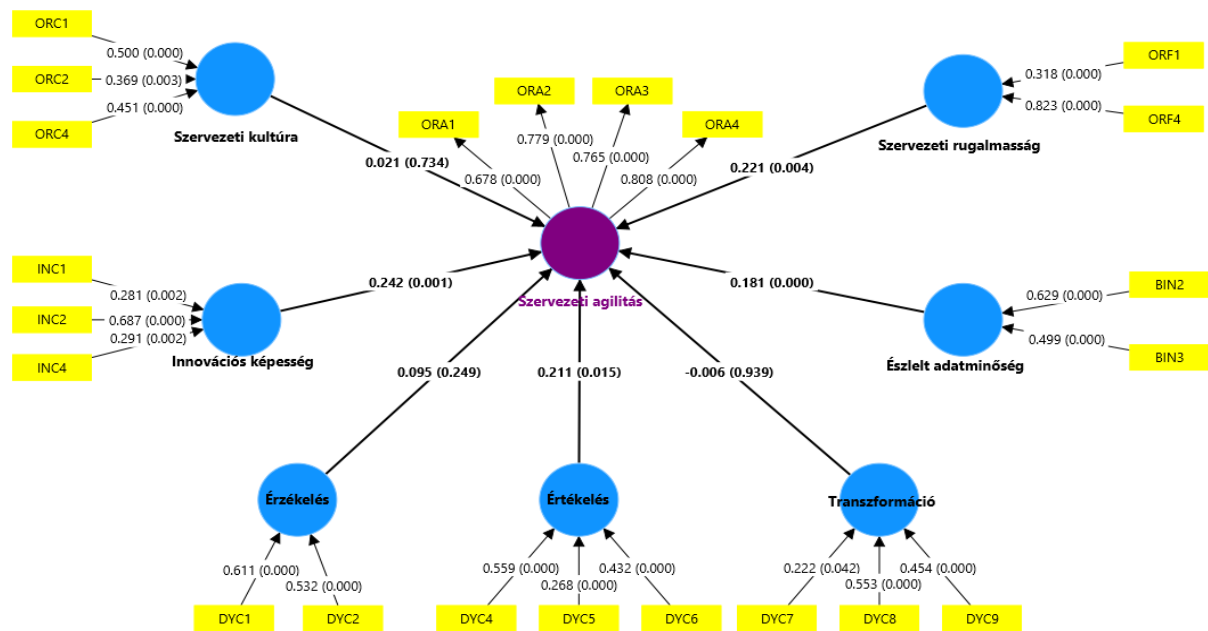


Figure 3. Effects of the Explanatory Dimensions on Organizational Agility

Source: Own research and elaboration (n = 202)

Based on the Structural Equation Model (SEM), it can be concluded that among the examined factors, innovation capability exerts the strongest effect on organizational agility (standardized regression weight: $\beta = 0.242$; $p = 0.001$), indicating a weak but positive relationship. According to the other results of the model, the dimensions of perceived data quality, innovation capability, organizational flexibility, and evaluation also exert weak but positive effects on the target variable ($p < 0.05$), which can likewise be considered statistically significant. In contrast, no statistically significant effects on organizational agility were found for the dimensions of organizational culture, transformation, and sensing, indicating that these variables do not meaningfully contribute to the variation of the target variable within the model.

3.2 Examination of Differences Between Business Groups

To compare the effects of the four factors (size, location, organizational structure, and ownership type), a Kruskal–Wallis test was conducted (Figure 4).

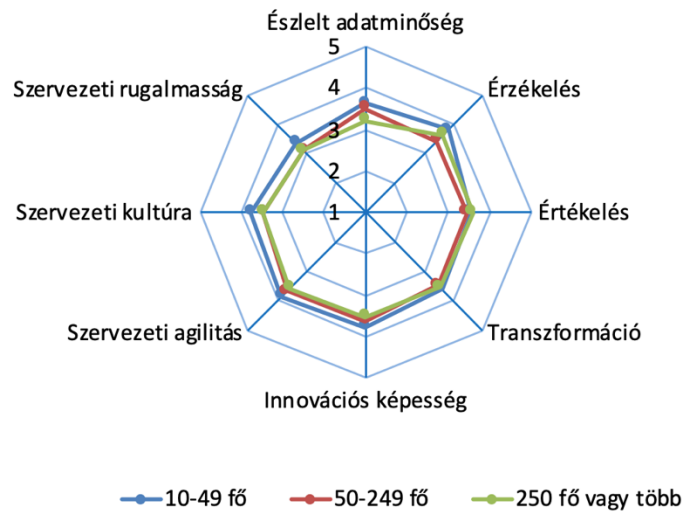


Figure 4. Average Values of the Dimensions by the Three Organization Sizes

Source: Own research and elaboration (n = 202)

The Kruskal–Wallis test indicated a significant difference only for the perceived data quality dimension ($H = 7.261$; $p = 0.026$) with respect to organizational size. According to the Dunn–Bonferroni post hoc test, executives of large companies rated the adequacy of data quality significantly lower than their counterparts in small and medium-sized enterprises (SMEs). No significant difference was observed between small and medium-sized companies regarding their assessment of data quality. In my interpretation, larger organizations are more complex, which imposes higher data and analytical demands on executives. Although larger companies likely have better access to and quality of data, this may not hold true for smaller organizations. Furthermore, SMEs may be less advanced in digitalization, limiting data accessibility. In small and medium-sized enterprises, satisfaction with data quality may coincide with lower demand for additional or higher-quality data, or simply the smaller organizational size may facilitate easier access. These assumptions are based on my practical experience within the industry.

The Kruskal–Wallis test did not reveal significant differences in the values of the examined dimensions across organizational structures (linear, functional, divisional, matrix) or regions. However, the test showed significant differences between ownership types in two dimensions: Sensing ($H = 7.360$; $p = 0.025$) and Organizational Agility ($H = 7.575$; $p = 0.023$). According to the Dunn–Bonferroni post hoc test, executives of foreign-owned companies rated the level of sensing significantly lower than those of mixed-ownership companies, while no significant difference was observed compared to Hungarian-owned companies. Regarding organizational

agility, executives of foreign-owned companies gave lower ratings than those of Hungarian-owned companies (Figure 5).

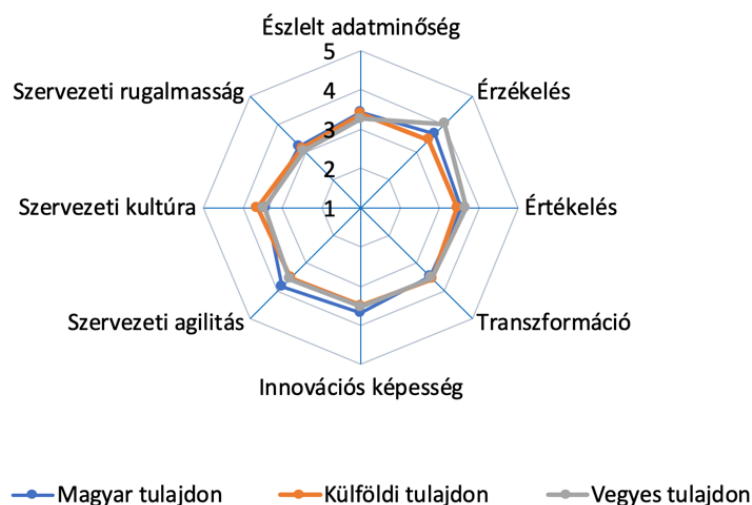


Figure 5. Average values of the dimensions by three ownership types

Source: Own research and elaboration (n=202)

Based on their years of experience in the sector, I assume that managers of foreign-owned companies go through more complex decision-making processes; strategy changes are not quick, and they operate within complex organizations with distributed responsibilities. Consequently, their assessment of information (opportunities, risks, potential innovations) is realistic. A similar explanation may apply to organizational agility: in Hungarian or mixed-ownership companies, decision-making paths and involvement occur at the local management level, allowing faster responses to products and services in local markets. In contrast, international companies, with globally established standards and regulations, may rate their organizational agility lower due to these constraints.

The hypotheses evaluation is summarized in the following table (Table 2).

Table 2 Detailed analysis of hypothesis testing based on individual preconditions

Source: own compilation

Hypotesis	Examined effect	Result	Conclusion
H1: A higher level of sensing positively influences organizational agility.	Sensing Organizational Agility ->	not confirmed	The H1 hypothesis was not supported.
H2: More accurate evaluation of information positively affects organizational agility.	Sizing Organizational Agility ->	modest positive effect	The H2 hypothesis was supported.
H3: Higher-level transformation positively impacts organizational agility.	Transformation Organizational Agility ->	not confirmed	The H3 hypothesis was not supported.
H4: Perceived data quality and its advanced utilization positively influence organizational agility.	Perceived Data Organizational Agility ->	modest positive effect	The H4 hypothesis was supported.
H5: Higher organizational flexibility has a positive effect on organizational agility.	Organizational Flexibility -> Organizational Agility	modest positive effect	The H5 hypothesis was supported.
H6: A collaborative organizational culture positively affects organizational agility.	Organizational Culture -> Organizational Agility	not confirmed	The H6 hypothesis was not supported.
H7: Stronger innovation capability positively influences organizational agility.	Innovative Capacity -> Organizational Agility	modest positive effect	The H7 hypothesis was supported.
H8: The geographical location of companies (regions) affects the level of organizational agility and its determining factors.	Location Organizational Agility ->	not confirmed	The H8 hypothesis was not supported.
H9: The ownership structure of companies (Hungarian, foreign, or mixed ownership) influences the level of organizational agility and its determining factors.	Ownership Organizational Agility ->	partly confirmed: Sensing Organizational Agility	The H9 hypothesis was partly supported.
H10: Organizational structure (linear, functional, divisional, matrix) affects the level of organizational agility and its determining factors.	Structure Organizational Agility ->	not confirmed	The H10 hypothesis was not supported.
H11: Different company sizes (small, medium, large) have varying effects on the level of organizational agility and its determining factors.	Size Organizational Agility ->	partly confirmed: Perceived Data	The H11 hypothesis was partly supported.

Source: Author's own compilation

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

The primary objective of this dissertation was to gain a deeper understanding of organizational agility as an internal capability that ensures and sustains corporate competitiveness, to identify its influencing factors, and to develop a measurement model. Organizational agility encompasses capabilities such as speed, flexibility, proactivity, and responsiveness, which enable firms to adapt effectively to environmental challenges and to proactively develop and reallocate internal resources in order to secure sustainable competitive advantage. The research aimed to fill a gap by making measurable those factors that shape organizational agility in a complex manner.

An analysis of the international literature highlighted that the conceptual framework and measurability of organizational agility remain open questions in scholarly discourse. Due to the complexity of the concept and context-dependent interpretations, there is currently no unified or standardized methodology for determining agility levels (Mrugalska & Ahmed, 2021; Desalegn et al., 2024). Comparative analyses of organizational resilience and agility have shown that the two concepts are often used interchangeably in the literature to describe organizational responses to unexpected events and crises (Hollnagel et al., 2011). However, in the present study, these capabilities are interpreted as representing distinct but complementary dimensions of organizational competitiveness, with both being necessary. Organizational resilience relates to reactive, short-term survival mechanisms aimed at maintaining and restoring operational continuity (Williams et al., 2017), whereas organizational agility can be understood as a proactive, future-oriented capability structure based on recognizing change, learning, and strategic resource reallocation (Doz & Kosonen, 2008). The simultaneous presence of both capabilities is necessary for sustaining competitive advantage. These distinctions allowed the research to address the first and second research questions (K1, K2) and achieve the related objectives (C1, C2).

It was also found that previous empirical studies largely approached agility measurement from a single dimension, such as business intelligence (Park, El Sawy & Fiss, 2017), organizational flexibility (Doz & Kosonen, 2010), organizational structure (Rigby, Sutherland & Takeuchi, 2016), or dynamic capabilities (Teece, Peteraf & Leih, 2016). In contrast, the present study aimed to develop a comprehensive, multidimensional theoretical model that conceptualizes organizational agility as an integrated system of capabilities. Teece's (2007) dynamic capabilities theory and Sharifi and Zhang's (1999) agility model served as the theoretical foundation for the model development.

The significance of the developed model lies not only in identifying the key factors comprising organizational agility but also in examining their impact on overall agility levels. As an innovative element, the three components of dynamic capabilities—sensing, seizing, and transforming—were examined separately, recognizing that these factors may contribute to agility differently and to varying degrees. The final model includes seven internal dimensions: sensing, seizing, transforming, perceived data quality, organizational flexibility, organizational culture, and innovation capability. Measuring these dimensions allows targeted development of organizational agility and supports strategic management of corporate operations.

The study also hypothesized that organizational size, structure, ownership, and geographical location might influence organizational agility. This hypothesis was only partially confirmed. Empirical results supported that organizational agility is a multidimensional phenomenon, whose interpretation and application must consider the specificities of the country, market, and industry context (Motwani & Katatria, 2023).

The theoretical model was empirically tested through a quantitative study of Hungarian food industry companies. The results confirmed that certain internal factors exert a significant positive effect on organizational agility. The model's statistical reliability and validity were confirmed, demonstrating its applicability in corporate practice. This allowed the third and fourth research questions (K3, K4) to be addressed and the associated objectives (C3, C4) to be achieved.

4.2 Practical implications

Organizational agility is a critical capability in dynamically changing business environments, fundamentally shaping firms' long-term competitiveness. Based on the empirical research findings, four internal factors were identified as having a significant positive impact on agility levels. Targeted development of these factors can enhance firms' strategic adaptability and provide a foundation for actionable and developmental plans.

Evaluation **sizing**, as a key component of dynamic capabilities, its showed a positive correlation with organizational agility. The evaluation process enables the identification, interpretation, and prioritization of risks and opportunities arising from environmental changes, thereby improving the quality of strategic decision-making. The results suggest that beyond traditional performance measurement systems, organizations may benefit from integrating innovation rates, predictive analytics, and simulation and risk assessment methods. In the Hungarian food industry, developing evaluation capabilities can be achieved primarily through enhancing managerial competencies, systematically utilizing market research data, integrating external consultancy and scientific knowledge, and engaging in international

knowledge exchange. **Perceived data quality** also exerts a significant positive influence on agility. The study highlighted that data quality encompasses not only the quantity and accuracy of data but also users' ability to interpret information in a relevant, timely, and accurate manner. High perceived data quality helps reduce uncertainty and enables rapid, well-informed decision-making. Practically, improving data quality can be achieved through standardized data collection and cleansing protocols, dedicated responsibilities, the application of artificial intelligence and machine learning technologies, and fostering a data-driven organizational culture. In the Hungarian food industry, enhancing data quality is particularly achievable by advancing digitalization processes and strengthening organizational data culture, which are essential for sustaining long-term competitiveness. **Organizational flexibility**—the ability to rapidly adapt structures, processes, and resources—also positively affects agility. The findings indicate that flexibility can be increased through deliberate organizational design, including adaptable processes, developing employees' multi-competencies, and broader application of knowledge management tools and reskilling programs. Establishing decentralized decision-making, creating cross-functional teams, and deploying digital learning platforms can further strengthen flexibility. In the Hungarian food sector, regulatory rigidity can be mitigated through expert involvement and project-based approaches, while foreign-owned companies benefit from adapting international best practices and continuous employee training. Domestically owned companies face limitations such as capital scarcity, difficulties retaining skilled labor, and leadership succession gaps; however, smaller-scale interventions can still initiate improvements in flexibility. **Innovation capability**—the ability to generate and implement new ideas—positively impacts organizational agility. Innovation enables organizations not only to respond to environmental changes but also to proactively shape new products, processes, and human resource development solutions. Innovation capability is the result of long-term, deliberate culture building, in which leaders can enhance performance by encouraging creative thinking, risk-taking, and dismantling siloed operations. A structured innovation agenda, iterative work methods, and collaboration with start-ups, academic institutions, and other firms further support the development of innovation capabilities. In the Hungarian food industry, global innovation practices can be adapted by multinational companies, while domestically owned firms can strengthen innovation capability through external project teams and interim managers.

Overall, the empirical findings confirm that organizational agility primarily results from internal capabilities and processes, with key elements including evaluation, perceived data quality, organizational flexibility, and innovation capability. The combined development of these factors contributes to the organization's sustainable competitiveness over the long term.

4.3 Research limitations

Based on the results of the dissertation, the following limitations of the study were identified:

- **Conceptual and measurement uncertainty:** Organizational agility is a multidimensional construct for which no universally accepted or standardized measurement methodology exists. This conceptual and methodological heterogeneity limits the generalizability of the findings, as different organizations, industries, and research contexts may define and measure organizational agility and its related factors differently.
- **Contextual constraints:** The dimensions of organizational agility and their effects are strongly influenced by the specific characteristics of the country, industry, and market environment. Consequently, the results of this study cannot be considered universally applicable and are primarily valid for the organizational and industry context examined.
- **Partial examination of background factors:** Although organizational size, structure, ownership, and geographic location were included in the analysis, the influence of these factors was only partially confirmed. A more comprehensive examination of background variables is necessary to gain deeper insights into the determinants of organizational agility.
- **Lack of a temporal dimension:** The study of organizational agility and resilience was primarily cross-sectional, which limited the focus on temporal changes and long-term developmental dynamics. This restricts the understanding of how the examined factors affect organizational competitiveness over extended, multi-year periods.

4.4 Future research direction

Based on the review of research on organizational agility and the topic's high relevance, it can be concluded that future studies should place greater emphasis on context-specific analyses. The dimensions and operational effectiveness of organizational agility can vary significantly across different environments and organizational conditions, such as levels of digital maturity, organizational learning, or employee well-being and engagement. Examining these contextual factors would enable a targeted exploration of new agility dimensions, operational mechanisms, and efficiency patterns, thereby supporting strategically informed organizational development.

Testing the applicability of the organizational agility dimensions and the empirical model in other industry contexts is also of interest. Different sectors—for example, the service sector, other branches of manufacturing, or the automotive industry—possess unique organizational structures, operational processes, and market dynamics, which may influence the validity,

relative weight, and functioning of agility dimensions. Such cross-industry comparative studies could contribute to evaluating the generalizability and applicability of the model, refining the framework for organizational agility, and enhancing its practical implementation across different economic sectors.

The empirical investigation in this dissertation was conducted at a single point in time, naturally limiting the temporal validity of the findings. Given that organizational agility is a dynamic and continuously evolving phenomenon, long-term, longitudinal research is particularly warranted. Such studies would provide insights into how agility capabilities develop across different stages of organizational life cycles, during crises, market disruptions, or strategic transformations. A longitudinal approach would facilitate a better understanding of the temporal dynamics, developmental trajectories, and long-term consequences of agility. Another potential research direction is the conduct of international comparative studies. Testing the empirical model in foreign environments would allow examination of the cross-cultural and economic context-dependence of agility dimensions. This type of research could contribute to the development of a globally applicable and comparable agility taxonomy, supporting international organizational benchmarking and transferable management practices. The complex nature of organizational agility underscores the need for more precise measurement and structured modeling. Future research could aim to develop new, reliable, and valid measurement instruments, scales, and validated questionnaires capable of examining the different dimensions of agility and the interactions among internal capabilities and processes. Concurrently, this would allow for further refinement of models and deeper structural exploration of relationships among variables.

During the research, it was observed that the main characteristics of organizational resilience—anticipation, coping, adaptation, and learning—can be interpreted as reactive counterparts to the dynamic capabilities of sensing, evaluation, and transformation. This insight offers a new perspective for structuring models measuring resilience and organizational agility and provides opportunities for future studies to explore the relationship between reactive and proactive capabilities using both quantitative and qualitative methods. A deeper examination of organizational resilience is particularly relevant for assessing the impacts of crises and unexpected environmental shocks, as well as for developing long-term adaptive strategies.

Overall, it can be concluded that future research on organizational agility should adopt a broader, temporally dynamic, international, and multidimensional approach, enabling a deeper understanding of the functioning, development, and interactions of capabilities, and providing a foundation for strategically informed recommendations for practical implementation.

5 NEW SCIENTIFIC RESULTS

- 1.** Based on a systematic analysis of the international literature, I identified the similarities and differences between organizational resilience and organizational agility, and developed the first Hungarian-language version of organizational agility terminology.
- 2.** Through bibliometric analysis, systematic literature review, and PLS-SEM modeling, I created and validated a multidimensional model of organizational agility within Hungarian food manufacturing companies. The model's statistical reliability and validity were confirmed, demonstrating its suitability for practical application.
- 3.** I empirically confirmed that key internal capabilities determining the level of organizational agility include sizing, perceived data quality, organizational flexibility, and innovation capability. Higher levels of these factors exert a significant positive effect on organizational agility, supporting the conclusion that agile operations are driven by knowledge-based decision-making, flexible adaptation, and innovation potential.
- 4.** The empirical study revealed that managers of large companies rated the adequacy of perceived data quality significantly lower than managers of small and medium-sized enterprises. Furthermore, managers of foreign-owned companies rated the level of sensing lower than those of mixed-ownership firms and organizational agility as lower compared to managers of domestically owned companies.

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