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Incorporation of Controlling into the Organizational Structures of Industrial Enterprises

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Abstract: Enterprises, especially those operating in a dynamic environment of industrial production, need a management concept capable of responding to changes. For prompt and accurate reactions, it is crucial for managers to have a feedback system that allows monitoring the achievement of defined goals, the utilization of the enterprise's potential, and the identification of its weaknesses. Controlling is an effective tool that enables monitoring and reporting the necessary areas, ensuring the efficient functioning of business processes through the early identification of deviations. It provides the enterprise's management with vital information about goal achievement, the enterprise's real potential, warnings about shortcomings, and a relevant feedback system. This research is aimed at examination of the role of controlling within the organizational structures of industrial enterprises in Slovakia and evaluation of the degree to which the current integration of controlling requires adjustments in companies' organizational structures. For the research purpose, a questionnaire survey was conducted, including 61 respondents, all specialists from financial or controlling departments. The most significant findings include the organizational integration of the controlling department within the surveyed enterprises and the necessity to reconsider how the controlling department is incorporated into the company's organizational structure. The findings suggest that companies with a functional organizational structure may need changes to enhance decision-making authority within the controlling department, while those with a line organizational structure already grant sufficient decision-making power to controllers.

Keywords: controlling; industrial enterprises; management; organizational structure; performance

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1. Introduction

In a rapidly evolving market, industrial companies face significant challenges. To succeed, it is essential for them to adapt to these changes and respond swiftly to technological and economic advancements. Embracing digitalization and implementing Industry 4.0 principles are critical for enhancing efficiency (Strachotová et al. 2019; Yaqub and Alsabban 2023). The dynamic changes resulting from Industry 4.0 have the greatest impact on industrial enterprises. Industry, especially the automotive industry, is the key economic sector in Slovakia, so Slovakia is most affected by this transformation among comparable countries.

Effective business management without controlling is impossible. Management requires comprehensive information and systems to effectively identify risks and opportunities. Management decisions in today's businesses must be data-driven to remain competitive and constantly adapt to, or even shape, the environment (Cristofaro et al. 2025). Traditional accounting, encompassing both financial and managerial accounting, is thus enhanced by controlling, which focuses on data analysis and processing (IGC 2010). Controlling primarily involves planning, control, and management, which together constitute the 'control circuit.' Planning sets the company's strategic direction for the upcoming year, while reporting facilitates the monitoring and analysis of any deviations and their

underlying causes. Management ensures the implementation of the plan by overseeing its execution and making necessary adjustments to align with strategic objectives (Rasoloniaina et al. 2014; Vollmuth 2004). Controlling supports corporate management through a complex information and organizational connection. By providing adequate cost information, it facilitates timely decision-making for management in all phases of the process. Management has the primary responsibility to address economic and business challenges. Additionally, having indicators and information about business processes is essential for optimal decision-making. Effective monitoring relies on the availability of accurate and objective data to compare with planned data, underscoring the necessity of introducing controlling (Weber and Schäffer 2008; Mehović and Softić 2014).

Controlling is a modern approach that helps management adapt to new circumstances, creating dynamic and resilient organizations capable of tackling challenges. With controllers acting as experts, it provides proactive and impartial support for real-time decision-making (Chodasová et al. 2013; Osmanagić Bedenik 2015). Its implementation is essential for enhancing the performance and market value of enterprises (Sedliačiková et al. 2021b). As the trend toward Industry 4.0 continues, digitalization is increasingly impacting production and controlling processes (Pfeifer 2021). Industry 4.0 technologies facilitate continuous control loops, making management control systems dynamic to align with organizational strategy and environmental factors (Yeheskel and Globerson 2020). These technologies provide access to big data from the internet of things and other sources, enabling machine learning and artificial intelligence to enhance decision-making and predict future outcomes (Javaid et al. 2022; Rahman et al. 2023). Many industrial enterprises have adopted lean management, yet their finance and controlling departments still use early 20th century methods, such as classical standard costing. Modern controlling must align with Industry 4.0 standards and guide companies toward flexible organizational structures (Pavlák and Písař 2020). Industry 4.0 is transforming accounting systems and controlling through technologies such as big data, AI, blockchain, and automation, which improves financial data analysis and cost optimization (Onyshchenko et al. 2022). The integration of Industry 4.0 into accounting information systems and processes will benefit companies, employers, employees, and clients through improving productivity, efficiency, and controlling functions (Chur and Yap 2024; Stacho et al. 2024). The implementation of artificial intelligence can improve efficiency, accuracy, and decision-making capabilities in controlling, leading to better management and optimization of business processes (Abdullah and Almaqtari 2024). In summary, controlling supports the adaptation of businesses in the Industry 4.0 era and improves real-time decision-making. Technologies such as big data, AI, and automation are transforming controlling, optimizing processes while enabling more flexible organizational structures. Industrial enterprises face challenges in adapting controlling to the requirements of Industry 4.0, particularly in its integration into the organizational structure. Functional structures often limit the decision-making authority of controllers, whereas line structures provide better conditions for effective decision-making. These challenges highlight the need to optimize processes to support strategic management and enhance competitiveness.

A robust control system is essential for companies operating in a rapidly evolving industrial landscape. It enables management to make informed decisions based on real-time data, facilitating a more agile response to market changes. Quality control also enhances cost efficiency and helps identify potential risks, allowing the company to better allocate resources, plan investments, and maintain competitiveness in an environment marked by rapid technological and market advancements. Knowledge of new possibilities, structures, and systems in industrial enterprises must adapt to changing requirements and challenges in production management. It is crucial to consider whether controlling is ready for these challenges and to provide accurate data for management and control systems. Traditional controlling focuses on retrospective data, spending excessive time analyzing past results. Future-oriented controlling must assess whether internal processes still meet current demands. The first step is to analyze the actual situation objectively and identify urgent requirements. This assessment forms the basis for developing and implementing

optimal solutions. For the controlling department to effectively address the challenges of supporting management in making critical decisions, it is essential to integrate it properly into the company's structure. The research presented in this article focuses on the current position of controlling departments and their role within the organizational structures of industrial companies in Slovakia. It also aims to evaluate the need and potential benefits of redefining the position of controlling based on its current level of integration. Despite the growing importance of controlling for effective management and strategic decision-making, there is a lack of research that systematically examines its specific position and organization in industrial enterprises in Slovakia. This study focuses on practical challenges related to the level of controlling integration and the unclear definition of its competencies within the organization. A deeper investigation into these issues is needed, particularly concerning the controlling department, which plays a key role in business decision-making processes. The goal is to evaluate the need and potential benefits of redefining the position of controlling based on its current level of integration, creating opportunities to enhance organizational efficiency and support operational and strategic decision-making. The article addresses the challenges of Industry 4.0, requiring more effective integration of controlling into organizational structures and proposes a redefinition of controlling's role to help companies better utilize modern technologies and increase competitiveness. It also highlights the fact that different organizational structures may achieve varying levels of controlling effectiveness, with lower effectiveness potentially indicating the need for transformation.

The main theoretical contribution of this article is the expansion of knowledge regarding the position of the controlling department within a company's organizational structure. The practical contribution is a new perspective for managers on how the integration of controlling can support strategic decision-making and increase business efficiency in a rapidly changing technological and market environment driven by Industry 4.0.

2. Literature Review

Controlling originated from the corporate role of the controller in the USA around the turn of the 19th and 20th centuries, with early functions emerging in rapidly growing companies, notably around 1880 with the Atchison, Topeka, and Santa Fe Railway System. Initially, tasks focused on financial issues related to bonds, shares, and securities. During this period, financial and cost accounting were distinct, with cost accounting primarily concentrating on production. As cost accounting evolved, so did controlling. The Controller's Institute of America was established in 1931, followed by the Controllership Foundation in 1944, which expanded the understanding of controllers' responsibilities beyond just accounting (Šiška 2013; Perović and Vujičić 2015). As American firms expanded into Europe, controlling became established in Central Europe, particularly in Germany, France, and Austria. Today, large corporations typically have dedicated controlling staff, while many small- and medium-sized enterprises have established separate controller roles. In Slovakia and neighboring countries such as the Czech Republic, Hungary, and Poland, controlling practices began to be implemented in 1991 (Foltínová 2011). In the professional and scientific literature, controlling is defined in various ways, but all definitions share similarities and aim to capture the essential features of controlling.

Controlling encompasses a range of tasks, including preparing financial reports, monitoring performance, and providing management advice (Goretzki and Strauss 2017).

The fundamental tasks of controlling involve planning, control, and management, collectively known as the "regulatory circuit". The planning process sets the main direction for the company for the next business year. Accurate control is facilitated by the company's reporting, and cause analyses address any deviations. The management process ensures adherence to the planned direction (Mann and Mayer 2000; Vollmuth 2004). Controlling encompasses numerous tasks across various business areas, culminating in reporting. Thus, the identification of key performance indicators within controlling and reporting frameworks is essential.

The development of enterprise systems has provided management accountants with access to larger data stores and enhanced computing power. These systems enable accountants to use data analysis techniques for questions like what happened (descriptive analysis), what is likely to happen (predictive analysis), and what is the optimal solution (prescriptive analysis) (Appelbaum et al. 2017). Industry 4.0 is currently having a profound impact on the field of controlling by introducing advanced technologies and processes. The integration of the Internet of Things (IoT), artificial intelligence, and big data analytics has revolutionized traditional methods, enabled real-time data analysis, and facilitated proactive decision-making (Folgado et al. 2024). The application of artificial intelligence and real-time data collection enables controlling systems to respond more flexibly to changes and enhance cost efficiency by optimizing resource utilization. Industry 4.0 not only increases operational efficiency but also redefines the role of controlling functions in supporting strategic decision-making within industrial enterprises (IBM 2021). Technological innovations enable more efficient real-time data analysis, allowing for more flexible responses to changes and optimization of resource usage, which in turn increases cost-effectiveness. In the organizational structures of industrial enterprises, controlling has become a key tool for supporting operational and strategic decision-making and improving operational efficiency, thus significantly contributing to successfully adapting to the challenges of the modern industrial environment.

In many companies, the distinction between controlling and managing is unclear, creating confusion over the roles of controllers and managers. Controlling is essential for financial planning, liquidity management, and accounting oversight. Controllers are often confused with managers or financial directors due to their extensive responsibilities (Bragg 2012). A common issue is the overstaffing of administrative roles, with management often taking control and reducing delegation, despite acknowledging its inefficiency (Bagautdinova and Validova 2014). The integration of controllers within the organizational structure is crucial, as is clearly defining their job content, authority, and responsibilities. Thus, the organizational form of controlling is a key issue (Kobulnický and Kádárová 2013; Tamulevičienė 2019).

An organization comprises elements, relationships, and a structure that forms a cohesive unit. This structure, defining the essence of organizational activity, includes hard and soft elements. The hard dimension consists of material components such as groups and hierarchical units, while the relationships between these units represent the soft elements (Ahmady et al. 2016). Integrating controlling into a company's structure offers various alternatives: the controller may serve in an advisory role without decision-making authority, hold a line position with decision-making power, or adopt a cross-functional role that combines consulting and coordination with decision-making authority. This integration is vital for addressing serious deviations that threaten the company (Kobulnický and Kádárová 2013). Investigating the controlling department's position within industrial companies helps assess the need for repositioning to enhance efficiency. If internal quality is lacking, companies may outsource external controlling services. Discussions about offshoring controlling processes arise due to evolving cost structures from advancements in data usage. The digitalization of the business environment continually creates new opportunities for accounting information providers (Bhimani and Willcocks 2014). Problems with traditional integrations of the controller primarily arise from the existence of hierarchical structures, which can lead to issues with the flow of information, monitoring, and reporting of necessary data. These issues often result in difficulties in ensuring that data are provided with the required quality, structure, and timeliness for necessary expert analysis.

Problems with hierarchical structures have prompted companies worldwide to adapt by streamlining operations, reducing layers, downsizing, and laying off employees. Some managers are inclined toward a management revolution, altering their approach to organizational thinking. They are increasingly engaging with their organizations in fundamentally different ways, viewing them not as a static hierarchy but as a portfolio of dynamic processes (Ghoshal and Bartlett 1995; Matošková et al. 2023).

To address the lack of integration of controlling in traditional management structures and avoid outsourcing, companies can utilize specific responsibility centers. Defining the type of responsibility center (RC) for the controlling department is essential for the effective functioning of the management control system, as it centralizes budgeting, evaluation, accounting, and performance stimulation (Huang 2019).

For business entities, transitioning to a new corporate architecture is a fundamental decision, particularly when creating a progressive, innovative organizational and management framework focused on digitalization. The rapid pace of development has led to new organizational structures and the abandonment of traditional line and line functional structures. The rise of unstructured production forms, advancements in information technology, and the development of the Internet have increased the potential for dynamic decision-making processes and expanded the number of alternatives to consider. New organizational structures should reflect these changes, enabling companies to innovate and enhance their flexibility (Váchal and Talíř 2020).

A study on the controlling system's impact on organizational structure reveals a reciprocal relationship between controlling and structure. Controlling influences organizational form across four dimensions: configuration, specialization, centralization, and formalization. Implementing a controlling system typically results in a simpler and clearer organizational structure, allowing for better definition of duties, powers, and responsibilities through budgeting, reporting, and coordination. Controlling establishes order within the organization (Lichtarski 2005). Additionally, managing business risks requires mutual, unofficial cooperation among departments (Hudáková and Lusková 2017). Another study highlights the importance of interactions between individuals, both formal and informal; the absence of a central controller; and the coexistence of formal and emerging roles in organizational structures. These challenges arise during organizational development. The rapid pace of environmental changes requires structures that enhance agility in processing information, transforming it into decisions in a flexible and adaptive manner (Vesga et al. 2018).

Organizations implementing controlling should focus on the quality of this management support method. Simple implementation of control is insufficient; proper execution is essential. It is crucial to develop functional, organizational, and instrumental control solutions tailored to the organization's characteristics and its operating environment (Bieńkowska 2020).

Based on the presented theoretical framework and findings from previous research, a gap in existing knowledge was identified. Consequently, the research was aimed to analyze the role of control within the organizational structures of industrial enterprises in Slovakia and to assess the extent to which the current integration of controlling necessitates organizational structural changes within companies.

3. Materials and Methods

The aim of the presented research was to determine the status of controlling within the organizational structures of management in industrial enterprises in Slovakia and to assess whether a change is needed in the current inclusion of controlling within the existing management structures.

The research methodology was based on similar studies focused on the transformation of controlling, where the positive effects of lean management are well-documented. These studies primarily highlight their impact on improving process efficiency, reducing costs, and increasing productivity. The results of Camelot's survey revealed how well companies understand lean management and the extent to which effective control mechanisms have been developed and are possibly already being used to optimize the achievement of corporate goals. Almost 40% of respondents have not yet explored the philosophy and methods of lean management. Around 15% have begun to explore lean management and have implemented its initial methods. However, more than 45% of respondents are already actively engaged in lean management. Despite this, lean management is still more

commonly applied in production areas than in administrative functions (Spieler and Roth 2023). The findings suggest that lean management in controlling still holds significant potential. Most planned lean initiatives within companies fail during implementation. According to the AME (Association for Manufacturing Excellence), up to 90% of all lean initiatives fail in practice (Spieler and Roth 2023). The transformation of controlling requires the company to reevaluate its organizational structure, hierarchy, and responsibilities. Identifying waste is essential not only when designing the processes within the framework of the new organizational structure but also in all other activities. Changes in organizational structure and communication motivate employees to overcome resistance and train senior managers, staff, and internal customers on the benefits of lean management (Eliferov and Repin 2019). Therefore, we decided to conduct quantitative research to identify the potential for the transformation of controlling in relation to its integration into the company's organizational structure. We also aimed to examine whether there is a relationship between the current integration of controlling into the company's organizational structure and the need for its transformation.

Figure 1 contains the sequence of steps we took to achieve the main aim of this research.

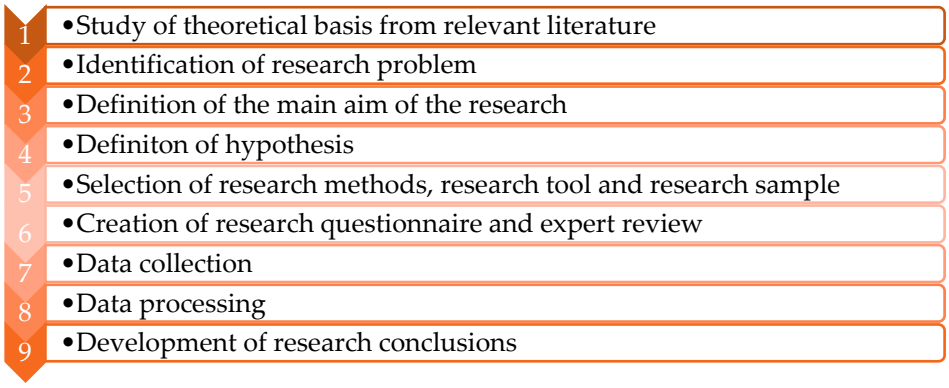

Figure 1. The overview of research phases (own elaboration 2024).

Quantitative research was conducted to understand the use of controlling, its extent of application within industrial enterprises, and the need for transforming controlling practices. A questionnaire was created for data collection and distributed in 2022 and 2023 by directly addressing financial or controlling departments. The questionnaire was distributed online. Respondents were contacted via email with a request to complete the questionnaire, and they indicated their consent to participate by clicking the "submit questionnaire" button. We selected medium and large enterprises as our research sample. Based on previous research and theoretical background, we assume that small enterprises typically do not have a dedicated controlling department, and the role of the controller is usually carried out by a member of the company's management. To be classified as medium or large enterprises according to the European Union categorization, at least two out of three criteria must be met: number of employees > 50, annual turnover > EUR 10 million, and total annual balance sheet amount > EUR 10 million. Subsequently, we used stratified sampling to proportionally select samples that represent companies from each region in Slovakia. The sample selection strategy ensured representativeness across various industrial sectors in Slovakia by focusing on a balanced selection of respondents from diverse sectors, each with different needs and approaches to controlling. This approach guaranteed that the research results are relevant to industrial enterprises across multiple sectors.

As a result, the research sample consisted of 150 medium and large industrial enterprises. To ensure an adequate sample size, we utilized a survey sample size calculator, which, at a 95% confidence level and a 10% margin of error, determined a minimum required sample of 59. In total, 61 questionnaires were evaluated as correctly completed.

The questionnaire consisted of two parts. The first part was focused on the identification of the company (size of the company—large/medium; industry sector—automotive/mechanical engineering/electrotechnical/chemical/metallurgical/other; ownership—Slovak/foreign). The second part of the questionnaire contained questions aimed at answering the research hypothesis. The specific text of the questions and answers is as follows:

1. Does your company have a separate controlling department whose job is not only financial controlling, but also technical/cost controlling? (Yes/No).
2. How many employees does the controlling department in your company consist of? (1/2–4/More than 5).
3. What is the organizational integration of the controlling department in your company? (Line/Functional/Dotted line/External controller).
4. Do you consider that the organizational structure of the company requires change regarding the inclusion of controlling? (Yes/No).
5. What centers of responsibility does the controlling department use in your company? (Shared Services Centre/Centre of expertise/Outsourced services/None).
6. If you belong to a consolidated entity, do you have standardized reporting within the controlling departments (If you do not belong to a consolidated unit, skip the question)? (Yes/No).
7. What key performance indicators of production processes are the most important for you from the point of view of reporting (list at least 5)? (Available as promised/Number of quality notices with technical reasons/Improving technical systems/Timely delivery/Sickness rate in percentage/Number of complaints sent to suppliers/Control costs in the production process/Number of turnovers of average warehouse stocks/Change in purchase price/Productivity tied to material costs/Productivity tied to value-added cost types/Relative change in production costs/Average inventory turnover rate/Production efficiency/Material scrapping/Stocks/Production output in EUR/Production result of the company).

Respondents selected one answer for each question, except for question 7, where multiple answers were allowed.

The questionnaire underwent content validity testing, a critical step in ensuring its relevance and accuracy during the preparation process. Experts in finance and controlling conducted the content validation, assessing whether all key areas were adequately covered and whether the questions aligned with the primary challenges and topics in the field. This process was essential to ensure the questionnaire would gather relevant information and provide valid data for testing the hypothesis. The experts evaluated the clarity and phrasing of the questions to ensure that the respondents could easily understand and interpret them. It was vital that the questions were not only relevant but also expressed in a clear and comprehensible language, enabling respondents to provide precise and unambiguous answers. Content validity testing is a standard practice in studies and research where obtaining accurate and reflective responses is crucial. This step allowed us to identify and address potential ambiguities in the questions or the provided answer options, minimizing the risk of bias caused by unclear or incomplete responses.

The experts were selected based on their previous collaboration and their expertise in finance and controlling, while their work experience ensured the relevance of their assessments. Each expert independently validated the research questionnaire and provided feedback, which was then incorporated into the questionnaire. The process continued until no further comments or suggestions for adjustments were provided by the experts.

Data collection was conducted electronically, and the gathered data were subsequently processed and analyzed statistically.

To present the results, tables and graphs were constructed, showing absolute, relative, and cumulative frequencies. Statistical testing of the hypothesis was conducted using regression analysis and the chi-square test.

To fulfil the research aim, we set two research hypotheses (RHs).

RH1: *There is a statistically significant relationship between the current inclusion of the controlling department in the organizational structure of the company and the established reporting standardization within the controlling function.*

RH2: *There is a statistically significant relationship between the current inclusion of the controlling department in the organizational structure of the company and the need to change the organizational structure of the company regarding the inclusion of controlling.*

4. Results

In Slovakia, medium and large companies statistically use controlling significantly more than small companies (Sedliačiková et al. 2021a). These larger firms are also more resistant to perceived obstacles that could hinder controlling's practical implementation (Potkány et al. 2024). Small- and medium-sized companies often struggle with uncertainty and lack familiarity with controlling. For effective implementation, it is crucial for owners of small and medium enterprises to hire individuals proficient in controlling (Soósová 2011). Considering the background, we focused on medium and large companies in this research. The research sample consisted of 61 industrial companies based in Slovakia. The structure of respondents is shown in Table 1.

Table 1. Structure of research sample (own elaboration 2024).

Structure of Respondents	Absolute Values		Relative Values	
	Absolute Frequency	Cumulative Frequency	Relative Frequency (%)	Cumulative Frequency (%)
Large company (over 250 employees)	45	45	73.77	73.77
Medium company (50–249 employees)	16	61	26.23	100.00
Automotive industry	21	21	34.43	34.43
Mechanical engineering industry	17	38	27.87	62.30
Electrotechnical industry	15	53	24.59	86.89
Chemical industry	1	54	1.64	88.53
Metallurgical industry	1	55	1.64	90.17
Other industry	6	61	9.83	100
Slovak company	58	58	95.08	95.08
Foreign company based in Slovakia	3	61	4.92	100.00

Based on Table 1, large companies participated in the research to a higher extent. Likewise, the most represented companies from the point of view of the company sector include the automotive industry, the mechanical engineering industry, and the electrical engineering industry. This fact corresponds to the distribution of industrial sectors within enterprises in Slovakia. In terms of ownership, most businesses are owned by Slovak owners.

Table 2 shows the distribution of companies, according to whether they have an autonomous controlling department.

Table 2. Companies from the point of view of an autonomous controlling department (own elaboration 2024).

Separate Controlling Department	Absolute Values		Relative Values	
	Absolute Frequency	Cumulative Frequency	Relative Frequency (%)	Cumulative Frequency (%)
Yes	56	56	91.80	91.80
No	5	61	8.20	100.00

Based on Table 2, a significant majority (91.8%) of companies have an autonomous controlling department, whereas 8.2% do not have a separate controlling department.

Table 3 shows the respondents in terms of the number of employees who are engaged in controlling or work in the controlling department.

Table 3. Companies in terms of the number of employees involved in controlling or working in the controlling department (own elaboration 2024).

Number of Employees	Absolute Values		Relative Values	
	Absolute Frequency	Cumulative Frequency	Relative Frequency (%)	Cumulative Frequency (%)
1	7	7	11.48	11.48
2–5	41	48	67.21	78.69
more than 5	13	61	21.31	100.00

As shown in Table 3, enterprises with two to five employees that are involved in controlling processes or work at the controlling department are the most represented. Only 11.5% of companies have controlling provided by a single employee. It can be concluded that a controlling function performed by just one employee is typically found in some medium-sized enterprises with fewer employees, where the role of the controller is taken on by a member of the management team. In such cases, the controller is often limited to conducting ad hoc analyses that may not provide substantial added value from a business management perspective. The organizational integration of the controlling department within the company is illustrated in Figure 2.

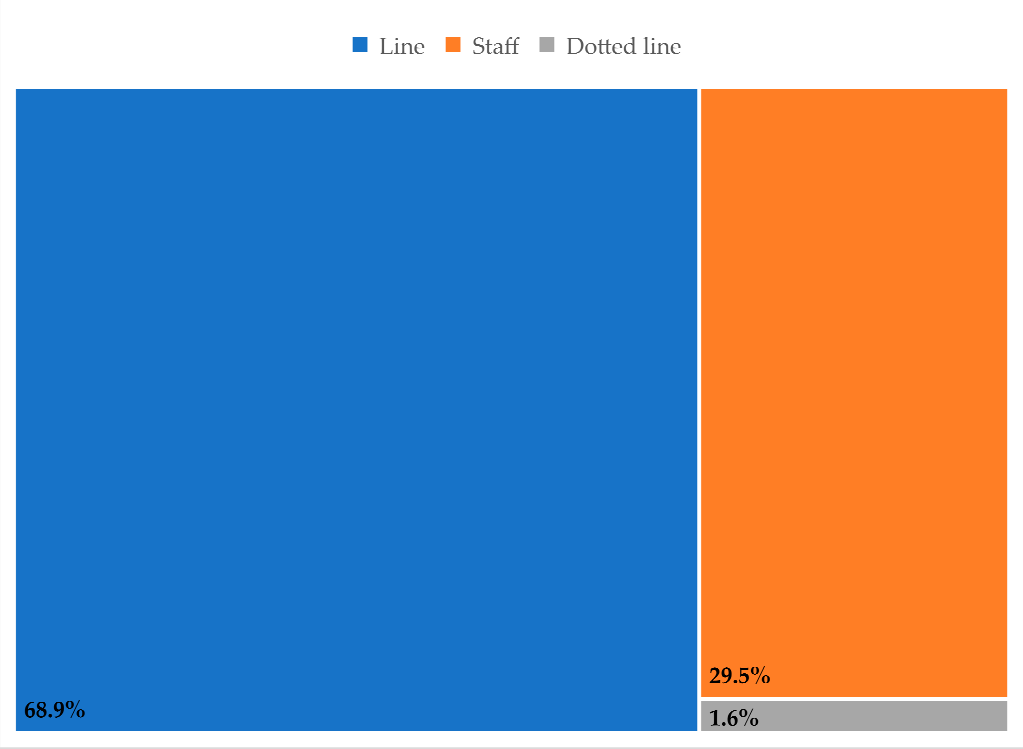

Figure 2. Responses for organizational integration of the controlling department in the company (own elaboration 2023).

Regarding the organizational integration of the controlling department, 68.9% of companies have line organizational integration, followed by staff organizational integration with 29.5%. Percentage of companies with controlling in the form of a dotted line within the organizational structure is 1.6%. A leader in a dotted line is a person to whom employees report on specific projects or as a secondary superior (Kim 2023). We conclude that since 73.8% of the respondents are part of large companies, the largest companies have a line

organizational integration of controlling. The controller is therefore on the same level as other members of management. The controller has decision-making authority as the head of production or the head of the economic department. Subsequently, we proceeded to investigate the representation of the respondents in terms of the use of support centers, as shown in Figure 3.

Figure 3. Enterprises in terms of using other internal or external departments to support controlling (own elaboration 2023).

The results shown in Figure 3 indicate that most companies have not implemented responsibility centers as part of their organizational structure, suggesting a lower level of formal specialization in controlling. Out of the 56 companies with dedicated controlling departments, only two utilize expert centers, which could indicate that controlling is not structured into specialized units with clearly defined competencies and responsibilities. The even lower occurrence of shared service centers (three companies) and outsourcing of controlling services (also three companies) suggests that firms are not widely relying on these modern organizational models. This may be due to several factors, such as a lack of resources for implementation, limited knowledge of the benefits of these approaches, or simply a preference for more traditional organizational models.

Based on the theoretical background and expertise of the authors' experiences, we proceeded to test the established hypotheses.

We established a null hypothesis for RH1:

RH01: *There is no statistically significant relationship between the current inclusion of the controlling department in the organizational structure of the company and the established reporting standardization within the controlling function.*

We then formulated an alternative hypothesis for the null hypothesis:

RH1: *There is a statistically significant relationship between the current inclusion of the controlling department in the organizational structure of the company and the established reporting standardization within the controlling function.*

Table 4 captures the structure of respondents belonging to the consolidated entity in terms of whether it has established reporting standardization within the controlling function.

Table 4. Respondents from the point of view of the standardization of reporting (own elaboration 2024).

Standardizing Reporting	Absolute Values		Relative Values	
	Absolute Frequency	Cumulative Frequency	Relative Frequency (%)	Cumulative Frequency (%)
No	6	6	9.84	9.84
Yes	55	61	90.16	100.00

It can be seen from Table 4 that the respondents answered that reporting is not standardized in all companies. Despite that, the results that standardization of reporting is established in most companies, indicate a strong focus on efficiency, consistency, and improving the quality of decision-making. This approach enables companies to better respond to regulatory requirements and enhance confidence in the accuracy and comparability of data. The implementation of standardization also suggests advanced digitalization and the use of modern technologies to support management processes. The number of companies according to the current incorporation of controlling in the organizational structure and the standardization of reporting is shown in Table 5.

Table 5. The number of companies according to the current integration of controlling in the organizational structure and the standardization of reporting (own elaboration 2023).

Integration to the Organizational Structure	Standardization of Reporting		
	Yes	No	Sum
Line organizational structure	41	1	42
Functional organizational structure	13	5	18
Dotted-line organizational structure	1	0	1
Sum	55	6	61

As can be seen in Table 5, if the controlling department is integrated into organizational structure of company as line department, the standardization of reporting is implemented to the highest degree.

To test the null hypothesis, we chose regression analysis. Table 6 describes the regression model.

Table 6. Regression model summary (own elaboration 2024).

Model Summary				
Model	R	R Square	Adjusted R-Squared	Std. Error of the Estimate
1	0.401	0.161	0.147	0.277

As presented in Table 6, the correlation coefficient R is 0.401. This indicates a moderate dependence between the standardization of reporting and the method of incorporating the controlling department into the organizational structure of the company.

The coefficient of determination R-squared explains that 16.1% of the variability in reporting standardization is influenced by the incorporation of the controlling department into the organizational structure of the company. The analysis of variance, which indicates how well the regression model describes the data, is shown in Table 7.

The statistical indicator F, with a value of 11.323, represents the ratio between the explained variability of the model (regression) and the unexplained variability (residual) and reflects the strength of the regression model. The significance value $p = 0.001$ is much lower than the standard accepted level of statistical significance $p < 0.05$, indicating that the model is statistically significant. The regression, representing the variability explained by the model, is 0.871, while the residual value is 4.539. The mean square for regression is 0.871, and it is 0.077 for residual.

Table 7. Analysis of variance (own elaboration 2024).

ANOVA						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	0.871	1	0.871	11.323	0.001
	Residual	4.539	59	0.077		
	Total	5.410	60			

The coefficients of the regression equation are presented in Table 8.

Table 8. Model coefficients (own elaboration 2024).

Coefficients [a]					
Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
1 (Constant)	0.801	0.095		8.402	0.000
What is the organizational integration of the controlling department in your enterprise?	0.221	0.066	0.401	3.365	0.001

[a] Dependent Variable: If your enterprise is part of a consolidated group, do you have standardized reporting implemented within the controlling departments?

The unstandardized coefficient has a value of 0.801, and the unstandardized coefficient b1 has a value of 0.221 The coefficient b1 means that if the level of integration of controlling increases by one unit, the value of implementing standardized reporting will increase by 0.221 units, assuming all other factors remain unchanged. The standardized coefficient beta is 0.401 at a significance level of $p = 0.001$, which is lower than the standard accepted level of statistical significance for accepting hypothesis H1, set at $p < 0.05$. The value of 0.401 indicates the relative strength of the independent variable's influence on the dependent variable. Due to standardization, this coefficient can be compared across different models. The beta coefficient shows a medium-strength positive impact of the integration of the controlling department on the implementation of standardized reporting. Since we have only one independent variable, the integration of the controlling department into the organizational structure of the company, the standardized coefficient beta is identical to the correlation coefficient R in Table 5. The results confirm that the organizational integration of the controlling department into the company's structure has a significant impact on the implementation of standardized reporting in the controlling department. Based on these results, we reject hypothesis H01 and accept hypothesis H1. The integration of the controlling department into the organizational structure significantly supports the implementation of standardized reporting, which can lead to more efficient management, better transparency, and more accurate decision-making.

Subsequently, we proceeded to test the second hypothesis. We established a null hypothesis for RH:

RH02: *There is no statistically significant relationship between the current inclusion of the controlling department in the organizational structure of the company and the need to change the organizational structure of the company regarding the inclusion of controlling.*

We then formulated an alternative hypothesis for the null hypothesis:

RH2: *There is a statistically significant relationship between the current inclusion of the controlling department in the organizational structure of the company and the need to change the organizational structure of the company regarding the inclusion of controlling.*

Responses of the respondents, regarding the need to change the inclusion of the controlling department within the organizational structure of the company, are in the Table 9.

Table 9. The need to change the inclusion of the controlling department within the organizational structure of the company (own elaboration 2024).

Need to Change	Absolute Values		Relative Values	
	Absolute Frequency	Cumulative Frequency	Relative Frequency (%)	Cumulative Frequency (%)
No	46	46	75.41	75.41
Yes	15	61	24.59	100.00

Table 9 shows that up to 75.4% of respondents do not need to change the organizational structure of the company. We conclude that the companies that answered in the previous question that their organizational integration of the controlling department is linear, that is, the controller is integrated at the same level as other members of the management, do not need to change the organizational structure. We note that in the remaining 24.6% of companies where the controller subordinates directly to the management and has no decision-making or executive authority, the management is not satisfied with this organizational structure. These results indicate that line integration of the controlling department is more effective in terms of management satisfaction compared to other forms of organizational structures. They also highlight that companies with insufficient decision-making autonomy for controllers could benefit from reorganization to better support strategic management and enhance the efficiency of controlling.

The number of companies according to the current incorporation of controlling in the organizational structure and need for change is shown in Table 10.

Table 10. The number of companies according to the current integration of controlling in the organizational structure and the importance of changing the organizational structure of the company, with regards to the integration of controlling (own elaboration 2023).

Integration Into the Organizational Structure	Need for Change		
	Yes	No	Sum
Line organizational structure	4	38	42
Functional organizational structure	11	7	18
Dotted-line organizational structure	0	1	1
Sum	15	46	61

As can be seen from Table 10, for a linear organizational structure, the option that no change in the organizational structure is needed was the most frequently indicated.

Subsequently, we tested the null hypothesis with the Chi-square test of independence, the results of which are shown in Table 11.

As we can see in Table 11, the *p*-value of the test of 0.0001 is less than the significance level of 0.05; we reject the null hypothesis. Thus, there is a dependency between the current organizational structure of the company and the perception of the need for change in the organizational structure. Based on the data and information from the respondents shown in Table 10, there is a need for change in companies that have a functional organizational structure. One reason may be the need for greater decision-making competences within the controlling department, as controlling included in the functional organizational structure has only an advisory role, which can result in low efficiency. In a line structure, controlling has direct responsibility and authority within individual departments, which assumes that decisions are directly integrated into day-to-day management. Line integration of the controlling department also enables better communication between departments, as

controlling is part of operational management and is in direct contact with other business functions. This integration also ensures quicker adaptation to changes, as it is directly involved in management processes and can respond flexibly to dynamic situations, unlike a staff or functional model, where there may be a delay between identifying the need for change and its implementation. From a cost-reduction perspective, when controlling is part of a line structure, it directly influences decision-making, contributing to cost optimization and more efficient resource utilization. We note that companies that have a line organizational structure do not need to change the organizational structure. Since the head of the controlling department is on the same level as the head of production or the head of the accounting department, the controller has decision-making authority.

Table 11. Chi-square for hypothesis H02 (own elaboration 2023).

Summary					
Count	Rows	Cols	df		
61	3	2	2		
Chi-square					
	Chi-sq	*p*-value	x-crit	sig	Cramer V
Pearson's	18.41437	**0.0001**	5.991465	yes	0.549431
Max likelih	17.57581	0.000153	5.991465	yes	0.536776
	Chi-sq	*p*-value	x-crit	sig	Cramer V
Pearson's	18.41437	**0.0001**	5.991465	yes	0.549431
Max likelih	17.57581	0.000153	5.991465	yes	0.536776

5. Discussion

The integration of controlling into a company's organizational structure affects not only the authority of the controlling personnel but also access to essential data for monitoring and reporting. Based on the results characterized in the previous subsection, in companies where the controlling department is integrated within a line structure, there is no perceived need for a transformation of controlling. One potential reason for this may be the fact that the line organizational structure has a clear hierarchy and management, which supports simple decision-making and effective management. Communication between managers and employees is also simplified, reducing the likelihood of misinterpretations or delays in the transmission of information (Gabriel and Chika 2020). Additionally, the line structure is effective in coordinating people and activities, allowing for better management of daily operations. Due to the vertical authority and the absence of a complex approval process, decision-making is faster compared to functional organizational structures (Nizma et al. 2024). Companies with functional organizational structures may require a greater need for change because these structures are less flexible in response to a rapidly changing environment, hinder communication, and slow down decision-making (Skripak et al. 2016). Increasing the efficiency of controlling in these companies could involve transitioning to a line organizational structure, which would simplify decision-making processes and support a clear hierarchy of responsibilities. At the same time, improving coordination through decentralization could enable more efficient use of controlling processes in support of strategic goals. Management should aim to eliminate losses from internal complaints, poor production quality, and customer dissatisfaction. Establishing an effective feedback system is vital for promptly signaling deficiencies and providing relevant information to address current issues. This highlights the importance of controlling as a critical management tool (Šatanová et al. 2015). Controlling intersects many company areas, and its perception varies among individuals, ranging from monitoring cost consumption to complex consulting and future-oriented management. Research shows a focus on cost monitoring, calculations, and budget management (Potkány et al. 2022). Ultimately, controlling's primary task is to support management by generating reports essential for informed decision-making (Bestvinová 2022).

Many companies are currently influenced by new technologies and the growing volume of associated information (Gonos et al. 2016). New technologies are fundamentally changing strategic management in companies through digitalization, automation, and innovation. Companies face the pressure of rapidly adapting to technological changes that affect their ability to compete and improve efficiency (Kitsios and Kamariotou 2021; Dodgson 2021). Effective use of controlling provides significant benefits, contributing to competitive advantages, financial health, performance, and sustainability (Poláková et al. 2023). Control and controlling are also key tools of strategic management, supporting organizations in achieving their goals through planning, monitoring, and adjusting strategies. It includes both financial and non-financial indicators, enabling managers to make data-driven decisions and effectively adapt strategies to changing conditions (Martins et al. 2024). Thus, integrating controlling within organizational structures is crucial, as it defines the powers and responsibilities of the controlling department. The controlling function is evolving (Delaere and Ballon 2007), and despite new procedures from accounting, it remains a vital managerial task to prevent losses or chaos. Globally, there are two main approaches to controlling: the Western approach values individual responsibility and autonomy, while the Eastern approach emphasizes discipline and strict adherence to rules (Mišún 2018). Ultimately, controlling manages production quality through relevant information to meet goals and identify weaknesses in processes (Šatanová et al. 2015).

The controller plays a vital role in providing essential information for management, making integration within the company's management structure crucial. However, significant obstacles to implementing controlling tools include satisfaction with current performance measurements, high costs, and limited personnel and time resources (Teplická et al. 2019). It is essential to decide whether controlling will be managed by someone with other responsibilities or a dedicated employee. In large companies, evaluating the controlling department's position and integration is crucial. Existing departments must monitor effectiveness, and if issues arise, transformation options should be considered. It is incorrect to assume uniformity among companies within a single concern; each targets different markets and is influenced by local legislation and culture. Häll et al. (2023) state that national cultural influences shape organizational structures and management cultures, resulting in unique processes for each company.

The integration of companies into global concerns varies; some have a long history, while others are newly established, acquired, or still integrating operational programs. This research offers insights for companies on incorporating or transforming controlling within their organizational structure. Transforming controlling requires reassessing the company's structure, hierarchy, and responsibilities (Shafiee Kristensen and Shafiee 2019). A key finding is that successful implementation of new management concepts depends on employee support. Motivated employees who understand the need for controlling transformation can enhance its chances of success (Buhusayen et al. 2021). Monitoring and comparing changes enable organizations to leverage strengths and initiate development interventions (Ledimo and Nico 2014). One of the most critical factors in the transformation process is the top–down commitment of senior management. Their active involvement influences the entire project, including restructuring and cultural changes in employee attitudes toward quality. Education and training in lean management are essential for successful transformation. Changes in organizational structure and communication motivate employees to overcome resistance and educate internal customers—senior managers, teams, and departments—on the benefits of lean management (Alnadi and McLaughlin 2021).

To achieve better performance, processes must be controlled. Managing activities around these processes enhances the company's controllability, encourages controllers to consider both internal and external customer perspectives, and helps align resources effectively (Nowosielski 2014; Tamulevičienė 2016).

6. Conclusions

Based on the evaluation of the research hypothesis, we confirm a dependency between the current organizational structure of the company and the perceived need for change, particularly in companies with a functional organizational structure in industrial enterprises in Slovakia. It can be concluded that companies in Slovakia need a transformation of controlling. Slovakia, the Czech Republic, Poland, and Hungary began implementing controlling around the same time (Foltínová 2011) and share a similar history, having transformed in the 1990s and entered the EU together in 2004. While cooperation continues within the EU framework (Kowalska et al. 2018), further research is needed to confirm if the situations in these countries are indeed similar by expanding the sample to include others. The biggest shortcoming for large companies is the low level of standardization in controlling processes, particularly affecting those with divisions in different geographical locations. Standardizing business processes aims to achieve consistency among core organizational processes, enhance service delivery efficiency, and optimize costs (Goel et al. 2023). Any form of standardization improves company functioning. This is crucial because controlling focuses on cost optimization, making standardization essential. It also involves implementing prescribed procedures that eliminate various forms of waste. Different types of standards include regulations, quality standards, technical standards, and process manuals.

Quality and productivity are closely related to workplace standards. While most companies have standards in place, employees often lack awareness or fail to adhere to them. Effective leadership is crucial for maintaining a quality management system, yet many organizations do not recognize its importance, leading to behaviors that deviate from effective leadership expectations (Riwayadi 2024). Standardizing work operations is necessary to ensure quality, safety, and efficient use of resources. Data standardization is essential for transforming controlling processes, although striving for perfect data integrity can be wasteful (Hikmawatty et al. 2024). Given the importance of monitoring and reporting for decision-making, it is essential to consider controlling as a fundamental support function within every organization. If controlling processes are ineffective, assessing the necessity and methods for transforming them is crucial.

From the perspective of research recommendations derived from the findings, it is advisable to re-evaluate the use of the functional organizational structure within the controlling department and consider its reorganization to more clearly define decision-making competencies. Another recommendation is to introduce decision-making authority within the controlling function, allowing the controlling department to directly intervene in processes and more effectively support management and performance optimization. Following the implementation of these changes, companies should regularly monitor and analyze the extent to which the transformation of controlling has delivered the expected benefits, such as improved decision-making processes and streamlined operating costs.

The main theoretical contribution of this study is the expansion of knowledge regarding the position of the controlling department within a company's organizational structure. The study highlights the need to adapt controlling in different organizational structures, thereby developing the theory on the relationship between organizational structure and the need for controlling transformation. It also provides a new perspective on how the integration of controlling can support strategic decision-making and increase business efficiency in the context of a rapidly changing technological and market environment. In terms of practical implications for managers, it points out that for companies with non-line organizational structures, controlling needs to be adjusted to support collaboration between departments and provide managers with an integrated view of performance. Considering various decision-making lines can lead to increased efficiency and strategic planning. Within a line structure, controlling effectively supports decision-making due to the clear hierarchy and direct communication. It is also important to emphasize the role of new technologies. Managers should implement new digitalization technologies, such as artificial intelligence or big data, to gain a competitive advantage and respond more flexibly to a

dynamic environment. To improve the integration of controlling, managers should adapt controlling processes in non-line organizational structures to foster collaboration between departments and create an integrated view of the company's performance. Additionally, they should simplify decision-making lines in line-based structures, enabling more efficient planning and supporting faster decision-making.

Among the limitations of the research, the size of the research sample can be noted, which would benefit from being supplemented with additional companies to enhance the sample's representativeness. The number of respondents may limit the ability to generalize the results, and the findings could be skewed, not fully reflecting the broader reality of different companies and organizational structures. For more robust conclusions, a larger and more diverse sample would be needed. However, due to the difficulty of obtaining relevant respondents, such research would require a much longer timeframe. Another research limitation is the fact that a larger number of experts for questionnaire validation could have increased the reliability and applicability of the questionnaire. The experts were exclusively from the fields of finance and controlling, and a broader perspective from experts in organizational structures or strategic management could have expanded the results.

The generalization of research results to similar cases or situations is possible based on the sharing of the same characteristics and patterns (industry-oriented enterprises, large- and medium-sized enterprises, and geographical location).

Future research directions should focus on the reporting, including a more detailed examination of report contents and ways to improve the efficiency of controlling reports. It would also be valuable to explore the integration of controlling in other sectors, such as services or public organizations, to identify specific needs. These sectors face different challenges and needs in controlling, which could reveal new approaches and strategies. Research focused on these areas would provide valuable insights for companies outside of traditional industry sectors and would also help expand theoretical frameworks to encompass various types of organizations. Additionally, further research could focus on identifying regional differences, studying the application of controlling in companies from different countries while considering cultural, economic, and legislative specifics. Such research could uncover how economic and cultural contexts influence the way businesses implement and manage controlling. Comparative studies between industries and regional contexts would contribute to a better understanding of flexible approaches to integrating controlling across different enterprises and cultures. Another area of future research is undoubtedly examining companies that have undergone specific forms of transformations in their controlling departments and identifying the associated benefits or limitations. Further research could focus on creating a model to analyze various levels of decision-making authority within controlling and their impact on business performance. This model could simulate the effects of different degrees of autonomy in controlling on decision-making efficiency across different areas of the enterprise. In terms of transforming the controlling department, quantitative methods such as regression models or efficiency analysis could be applied to identify the specific benefits of reorganizing controlling. Another direction is focused on incorporating quantitative approaches to explore the potential application of emerging technologies in controlling. This includes investigating how tools like big data analytics, artificial intelligence, and automation can be effectively integrated into controlling practices, and analyzing their impact on decision-making, efficiency, and cost optimization in companies.

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