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Transformation of controlling in perspective of reengineering and modification of organizational structures in industrial enterprises

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Abstract: Organizing as a key management function appears in two basic forms, dynamic and static. The dynamic form includes the processes and activities taking place in the organization that ensure its effective functioning. The static form is represented by the organizational structure, which determines the way the organization is structured and the interrelationships between the individual components of the organization. Every organization has some type of organizational structure, which may be informal or formally established. This organizational structure determines the management and coordination of operations in the enterprise. Transformation of organizational structure should be considered when it is unable to respond to the changing conditions of the enterprise functioning. Such a transformation would help to improve the management systems of the enterprise. This paper focuses on controlling as a management support function in industrial enterprises and the reasons for its transformation. The aim of the research was to assess the need for transformation of controlling in industrial enterprises in Slovakia. The research tool used in the paper was a questionnaire, which was distributed to medium and large enterprises in Slovakia. The paper also analyses the reasons for non-transformation of controlling as well as the advantages and disadvantages of this transformation. The transformation of controlling primarily brings standardization and simplification of processes, leading to greater efficiency, cost savings, and improved team coordination. Although the transition may temporarily reduce data quality and affect decision-making, the overall benefits significantly outweigh the risks, making the company more competitive and adaptable to market challenges.

1 Introduction

Enterprises are constantly facing changes in the way they do business and implement new technologies. In addition to technological innovation, enterprises often must respond to changes in legislative requirements or customer preferences. If the existing organizational structures cannot respond to market changes, changing conditions outside but also inside the organization, it is reasonable to consider its transformation. Transformation to a more flexible structure that allows faster adaptation to change should be considered. Transforming structures often removes redundant layers of management, simplifies processes and streamlines communication between departments. Transforming organizational management structures should contribute to faster decision-making, better use of resources and the elimination of any waste. Eliminating waste is usually associated with production processes, but waste is too costly in any area, so it should also be identified in administrative processes that do not meet the requirements for modern management and faster adaptation to these changes. Therefore, in this paper we have measured the reasons for transforming controlling, as an important management support function, from the perspective of making the management of industrial enterprises more efficient.

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In today's dynamic times, controlling plays a very important role in business management. Controlling provides support in the management of the enterprise, being based on a complex information and organizational interconnection. Its main objective is to provide relevant cost information, thereby facilitating timely and correct management decision-making at all stages of the decision-making process.

The fundamental objective of any transformation is to align financing with the overall strategy of the business, thereby streamlining processes and improving the quality of service provided by the enterprise, not only to internal but also to external customers. Transforming controlling means aligning its activities and funding with the strategic objectives of the enterprise.

2 Literature review

The Controlling is an interdisciplinary management tool aimed at supporting the planning, management and control of processes in an organization. Its main areas include providing up-to-date and relevant information for decision making and efficient allocation of resources. The goal is to increase the efficiency and effectiveness of the organization through systematic coordination between planning, execution and control [1,2]. The fundamental characteristics of controlling include its universality, dynamism, and pervasiveness. It is a process that is continuous and adapts to changing conditions and objectives. Controlling also helps in preventing problems and ensures the achievement of organizational goals [3]. Modern technological innovations such as big data, artificial intelligence and cloud computing are fundamentally changing the approach to controlling.

Digitalization enables more accurate and faster data analysis, supports decision making and enables greater process automation [4]. Digital technologies provide more than just providing access to vast sources of information and knowledge; they are fundamentally changing the way industrial businesses are managed and enabling real-time collaboration across global teams [5].

However, the effectiveness of controlling in an organization is also influenced by its integration into the organizational structure, where its position and integration into decision-making processes plays a key role in achieving goals and optimizing the performance of the organization. Line organizational structures are key to clearly defining hierarchies and responsibilities in the organization, which promotes decision making and accountability [6]. The type of organizational structure has a significant impact on the successful institutionalization of processes such as product line engineering and ensures their alignment with long-term strategies [7]. Different organizational designs can influence the management of innovation and dynamic capabilities, especially in creating an environment that fosters radical innovation [8]. Linear organizational structures allow for a more adaptable framework, which is essential for organizations facing dynamic market conditions and the need for rapid response [9]. Integrating process owners within linear organizations can improve coordination and streamline operations, thereby improving overall efficiency [10]. Clear hierarchical organization in line structures promotes effective communication channels that are key to decision making and operational success [11]. The staff organizational structure combines line hierarchy with professional support positions. Staff provide advice and support to line managers without direct decision-making authority, thereby helping to meet the organization's strategic objectives. This structure allows for specialization and effective collaboration but can create conflict in authority and increase payroll costs. For optimal implementation, it is necessary to clearly define responsibilities and encourage collaboration between line employees and staff employees [12].

Changes in organizational structures are driven by factors such as improving organizational performance and design, adapting to external changes, and technological advances. These aspects indicate the necessity for organizations to adapt in order to respond to internal and external challenges, thereby maintaining efficiency and competitiveness.

Effective organizational design is critical for determining performance and facilitating collaboration among organizational members, which requires a scientific and empirical approach to design. The relationship between task allocation and coordination mechanisms is essential because interdependent and uncertain tasks require a well-structured design to function effectively [13]. Organizations must respond to a complex, dynamic environment characterized by globalization and competitive pressures, which requires agility in their structures [14]. Changes in organizational structure and processes are often driven by the adoption of new technologies, which can change the roles and responsibilities of employees [15]. The acceptance and integration of artificial intelligence (AI) within organizations is influenced by both individual and organizational factors, highlighting the importance of being prepared for technological change [16].

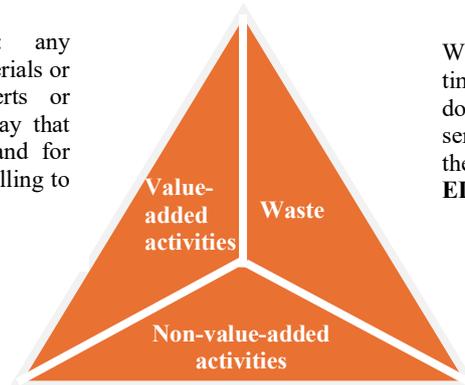
Lean methods enable enterprises to streamline various processes such as production, logistics or administration, while their application can also lead to optimization of the organizational structure. Through the identification and elimination of waste, better coordination and higher productivity of teams are ensured. Lean manufacturing practices and supply chain integration together enhance supply chain agility, which positively affects operational performance [17]. The integration of lean principles into logistics processes facilitates a smoother flow of materials and information across the supply chain, thereby improving overall efficiency [18], while also contributing to significant reductions in transportation costs and waste, as demonstrated in various case studies [19]. In this way, the enterprise not only adapts to dynamic market conditions, but also strengthens its competitive advantage.

The optimization of the different activity levels is illustrated in Figure 1.

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Value-added activities: any activity that absorbs materials or information and converts or transforms them in a way that meets customer needs and for which the customer is willing to pay.
OPTIMIZE!



Waste: activities, processes, time, materials, space, etc. that do not add value to a product or service and are not necessary for the system or process.
ELIMINATE!

Non-value-added activities: any activity that is necessary given the system or processes in use today, but that does not contribute any value to the product or service or to customer satisfaction.
REDUCE!

Utilization of potential at the activity level increases efficiency.

Figure 1 Optimization of the different activity levels (adapted from [20])

The Business processes are the focus of lean administration, because these are the ones that need to be optimized. Before anything can be improved, it must first be understood in detail. That's why analysis is the first step of transformation. Such an analysis records the overall process in detail, examining, naming and measuring each step of the process. At the same time, the activities are categorized because three types of activities can be identified at each level [20]:

- Value-added activities - activities that work for the benefit of customers. Material or information is processed in such a way that added value is created for the customer and the customer is willing to pay for this value.
- Non-value-adding activities - activities that do not directly contribute to customer satisfaction but are necessary as preparation or continuation.
- Redundant activities - activities that require a certain amount of material, space or time without contributing in any way to the creation of value and certainly without being requested by the customer.

Optimization of individual activity levels illustrates how to achieve process improvements and how to identify necessary actions.

The goal of lean administration consists of creating a system for the efficient organization of processes in administration that contributes to satisfying a need and value for the customer but does not directly contribute to the creation of added value. Every organization must have administrative process support in order to be able to produce products or provide services, but no customer pays for administrative process support [21].

The need to change organizational structures stems from a combination of demands on organizational performance and design, adaptation to external change, and technological development. Together, these factors highlight the importance of a flexible and efficient organization that can successfully face the challenges and complexities of the modern business environment.

A business in a market economy is under great pressure from competition. Rising costs, unstable economic situation, predatory competitive environment on the domestic and foreign market, etc. are the reasons why the management of the enterprise is constantly improving its management systems. It responds to new situations with new management functions that would allow to evaluate the fulfilment of planned enterprise objectives, to detect risks, to draw attention to real deviations from the desired development, to analyse and evaluate the effects of business activities and decisions, to plan and program the development of the enterprise, to inspire the management of the enterprise to reveal new business activities bringing economic effect [22]. By optimizing processes in the enterprise, the input required to perform the services will be significantly reduced. This will reduce operating costs and increase business competitiveness.

3 Methodology

The importance of assessing the need for transformation of controlling in industrial enterprises in Slovakia lies in its ability to reflect the dynamic changes in the business environment. Such an assessment helps to identify how controlling can better support strategic decision-making, optimize processes and ensure effective resource management. At the same

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time, it allows to adapt to new technological trends and market requirements, thereby increasing the competitiveness of enterprises.

The main objective of the presented research was to evaluate the need for transformation of controlling in organizational structures in industrial enterprises based in Slovakia. To meet the main objective, we set the following research questions:

RQ1: If the transformation of controlling has not taken place in industrial enterprises yet, what are the reasons?

RQ2: What changes would the implementation of controlling transformation in industrial enterprises bring?

RQ3: How do experts from industrial enterprises evaluate the benefits of implementing controlling transformation?

RQ4: How do experts from industrial enterprises evaluate the disadvantages of implementing controlling transformation?

The questionnaire was designed for data collection and distributed online via Google Forms platform. The data collection took place between October 2022 and January 2023. The research sample consisted of medium and large enterprises with more than 50 employees, operating in manufacturing industries and based in Slovakia. According to the set criteria, the sample size was determined to be 150 industrial enterprises.

To calculate the minimum required sample size, we used the minimum sample calculation methodology [23], setting the confidence level at 95% and the margin of error at 10%. Based on these parameters, the minimum required sample size was set at 59 enterprises.

The sample was determined without repetition based on the responses from the questionnaire survey. Out of a total of 150 active enterprises contacted, selected according to the above criteria, 61 respondents replied. This number therefore meets the minimum size requirement, and the sample can thus be considered representative. The overall return rate in the questionnaire survey is 40.7% in relative terms. Using descriptive statistics, the responses to the individual questions of the questionnaire are interpreted by tables and graphs of frequency distribution. The structure of the research sample is shown in Table 1.

Table 1 Characteristics of the research sample

INDUSTRY	MAJORITY OWNER	THE SIZE OF ORGANIZATION IN TERMS OF NUMBER OF EMPLOYEES		
		Medium-sized organization (50 – 249 employees)	Large organization (over 250 employees)	Total
		Count	Count	Count
AUTOMOTIVE	Foreign	5	16	21
ELECTROTECHNICAL	Foreign	1	14	15
METALLURGICAL	Foreign	1	0	1
CHEMICAL	Slovak	1	0	1
OTHER	Slovak	0	1	1
	Foreign	2	3	5
MECHANICAL ENGINEERING	Foreign	6	11	17
TOTAL	Slovak	1	1	2
	Foreign	15	44	59

Table 1 provides an overview of enterprises according to their size, distinguishing between medium-sized enterprises (50-249 employees) and large enterprises (over 250 employees). It also categorizes enterprises by industry and type of majority owner (Slovak or foreign).

The survey covered enterprises as follows: there are 21 enterprises in the automotive industry, of which 5 are medium-sized and 16 are large, all of which have a foreign owner. The electrical industry comprises 15 enterprises with foreign ownership, of which 1 medium-sized and 14 large. The metallurgical industry has only 1 medium-sized enterprise with foreign ownership. The chemical industry represents 1 medium-sized enterprise with Slovak ownership. Another category includes other industries, where 6 enterprises are classified: 1 large enterprise with Slovak ownership, 3 large enterprises with foreign ownership and 2 medium-sized enterprises with foreign ownership. The mechanical engineering industry comprises 17 foreign-owned enterprises, of which 6 are medium-sized and 11 large.

In total, the survey covered 2 Slovak-owned and 59 foreign-owned enterprises, of which 15 are medium-sized enterprises and 44 are large enterprises. As the research showed, controlling is implemented mainly in foreign, medium and large enterprises. In the questionnaire survey, up to 73.8% of enterprises are large enterprises and only 26.2% are medium-sized enterprises. The results of the research were subsequently processed in MS Excel and IBM SPSS software in the form of graphs, cross-tabulations of frequencies and descriptive statistics.

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4 Results

In the following analysis, we focused on whether a separate controlling department provides controlling in the analysed enterprises. Only 8.2% of enterprise representatives (2 large enterprises and 3 medium-sized enterprises) answered that they did not have their own controlling department. As even in some medium-sized enterprises there is no separate controlling department included in the organizational structure, controlling is performed by one of the members of the management as a secondary task. In this case, however, the controller can only deal with ad hoc analyses that do not have a high added value from a business management perspective.

The distribution of respondents in terms of the need to change the integration of the controlling department within the organizational structure of the enterprise and the progress transformation of controlling is depicted in Table 2.

Table 2 Cross tabulation of frequencies - the need for change in the organizational structure and the progress of transformation of controlling

		Do you consider it necessary to make a change in the organizational structure of the organization regarding the position of controlling, given the ongoing transformation of controlling?		Total
		Yes	No	
Is/Was a controlling transformation completed in your organization?	yes	1	2	3
	no	14	44	58
Total		15	46	61

It can be concluded from Table 2 that up to 46 respondents do not need to make a change in the organizational structure of the enterprises. We conclude that these were respondents from enterprises in which the organizational integration of the controlling department is fine. Since the controller is integrated at the same level as other members of management, they do not need to change the organizational structure. We conclude that in the remaining 15 enterprises, where the controller is not authorized to make decisions and give orders and is directly subordinate to the enterprise management, the enterprise management does not agree with such organizational integration. Respondents largely answered that they did not undergo a transformation of controlling.

We then proceeded to evaluate the first research question.

RQ1: If the transformation of controlling has not taken place in industrial enterprises yet, what are the reasons?

The evaluation of the responses from the respondents as to why in their opinion the transformation of controlling has not taken place is shown in Figure 2.

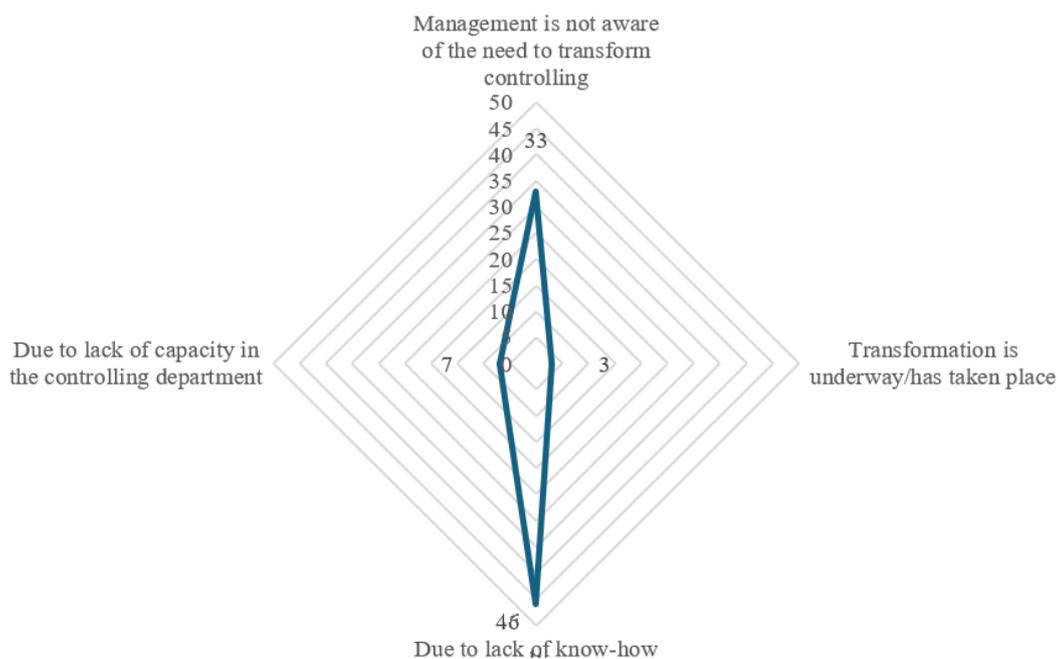


Figure 2 Reasons for not implementing transformation of controlling

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As can be seen in Figure 2, the major reason why the transformation of controlling in the enterprise is not taking place was identified by respondents as a lack of know-how.

As many as 46 respondents from enterprises answered that the main reason why the transformation of controlling has not yet taken place is due to the lack of “know-how”. Another reason is that the management is not aware of the need for the transformation of controlling, which is confirmed by 33 responses from enterprises. We conclude that both reasons are related, as a total of 28 respondents chose both options. If the management of the enterprise does not have the necessary “know-how”, it is not aware of the need for the transformation of controlling.

We further proceeded to evaluate the second research question.

RQ2: What changes would the implementation of controlling transformation in industrial enterprises bring?

The proportion of changes that the transformation of controlling is expected to bring to the enterprise is shown in Figure 3.

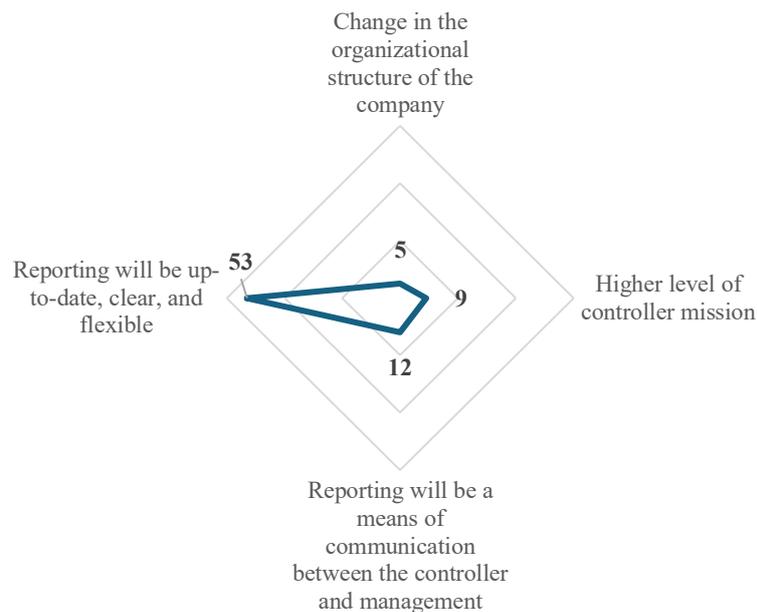


Figure 3 Changes expected by the transformation of controlling

Figure 3 shows four main areas of change, with each area represented by values that express the number of responses from respondents.

The largest number of responses, 53, concerned the expectation that reporting would become up-to-date, clear and flexible. The second most frequently mentioned change was that reporting would serve as a communication tool between the controller and management, which was reported by 12 respondents. Nine responses concerned the expectation that the transformation would increase the level of the controller's mission. Only five respondents, expect the transformation to cause a change in the organizational structure of the enterprise. The graph in Figure 3 clearly highlights that the main priority is the modernization of reporting, while the other expected changes are perceived as less significant.

We further evaluated the third research question.

RQ3: How do experts from industrial enterprises evaluate the benefits of implementing controlling transformation?

The respondents' responses on the benefits they expect the controlling transformation to bring are shown in Table 3.

Table 3 contains descriptive statistics regarding the evaluation of the six benefits of the controlling process transformation. Respondents were asked to number the benefits from 1 (most relevant benefit) to 6 (least relevant benefit) according to their perspective. Statistics include minimum and maximum ratings, average rating (Mean) and standard deviation (Std. Deviation) for each benefit.

The results in Table 3, regarding the benefits of controlling transformation show the following:

Elimination of controlling processes: The average rating was 3.21 with a relatively high standard deviation of 1.654, indicating that respondents had different opinions on this benefit. Standardization of controlling processes: It was rated as the most relevant benefit with an average score of 1.92 and the lowest standard deviation of 1.038, indicating greater agreement among respondents.

Simplification of controlling processes: The average rating was 2.56 with a relatively low standard deviation of 0.847, indicating relatively high agreement among respondents. Automation of controlling processes: The average rating was 3.00 with a standard deviation of 1.211.

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Reduction of process hours: This benefit was rated as less relevant, with a mean score of 4.82 and a low standard deviation of 0.827.

Savings in personnel costs: It was rated as the least relevant benefit with a mean score of 5.49 and a standard deviation of 1.233.

A total of 61 respondents responded to all questions. The data indicate that standardization and simplification of controlling processes are perceived as the most important benefits, while savings in personnel costs and reduction of process hours are perceived as the least important.

We then evaluated the fourth research question.

RQ4: How do experts from industrial enterprises evaluate the disadvantages of implementing controlling transformation?

A representation of the disadvantages (1 being the biggest disadvantage, 4 being the smallest disadvantage) that respondents expect the controlling transformation to bring is shown in Table 4.

Table 3 Benefits of the controlling transformation

DESCRIPTIVE STATISTICS						
	N	Minimum	Maximum	Mean	Std. Deviation	
Elimination of controlling processes	61	1	6	3.21	1.654	
Standardization of controlling processes	61	1	5	1.92	1.038	
Simplification of controlling processes	61	1	6	2.56	0.847	
Automation of controlling processes	61	1	6	3.00	1.211	
Reduction in process hours	61	2	6	4.82	0.827	
Savings in personnel costs	61	1	6	5.49	1.233	

Table 4 Disadvantages of the controlling transformation

DESCRIPTIVE STATISTICS						
	N	Minimum	Maximum	Mean	Std. Deviation	
Reduction in the quality of controlling data	61	1	4	1.28	0.609	
Reducing the number of key performance indicators	61	1	4	2.38	0.799	
Reduction in the number of employees	61	1	4	3.08	0.737	
Loss of motivation of current controlling employees	61	1	4	3.26	1.031	
Valid n (listwise)	61					

Table 4 shows the average ratings of the individual disadvantages, along with the minimum and maximum ratings and standard deviations.

The reduction in the quality of controlling data was rated as the biggest disadvantage, with an average score of 1.28. Low standard deviation (0.609) indicates a high level of agreement among respondents.

The reduction in the number of key performance indicators was perceived as the second most significant disadvantage, with an average rating of 2.38 and a slightly higher standard deviation of 0.799.

The reduction in the number of employees achieved an average rating of 3.08, indicating that it is perceived as a less significant disadvantage. The standard deviation (0.737) indicates a relative agreement among respondents.

The loss of motivation of current controlling employees was rated as the least significant disadvantage, with an average score of 3.26. The standard deviation (1.031) indicates a greater spread in the ratings, which may signal a diversity of opinions among respondents. Overall, respondents agreed that the reduction in the quality of controlling data represents the greatest disadvantage of the transformation, while loss of employee motivation is perceived as the least significant.

5 Discussion

Process transformation can significantly contribute to improving the efficiency of an enterprise through precise modelling and reengineering of business processes, which are key tools for organizational transformation. Implementing these changes allows an enterprise to optimize performance and respond flexibly to market challenges. Within the framework of controlling, this transformation plays a key role in improving management processes, which helps managers

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maintain competitiveness and achieve significant improvements in results through continuous optimization of processes and their better connection with the goals of the organization.

Business process modelling provides a structured approach to analysing and improving the efficiency and effectiveness of business processes, which leads to cost savings and increased performance [24]. Their comprehensive understanding through modelling allows organizations to effectively integrate and analyse their operations, which is crucial for achieving business goals [25]. Business process reengineering is a critical method for transforming inefficient processes, allowing organizations to redesign their operations to achieve dramatic performance improvements [26], and can lead to significant organizational transformation by enabling the redesign or replacement of outdated processes, thereby increasing overall productivity [27].

Continuous analysis and optimization of business processes are essential for maintaining competitive advantage, as they enable organizations to adapt to a changing environment and improve key performance indicators [28]. Effective management encompasses the full cycle of planning, implementation, monitoring, and improvement, ensuring that processes remain effective and aligned with organizational goals [26].

The main reasons why business process transformation does not take place are related to several key factors that highlight the complexity and difficulty of implementing effective business process management and reengineering. These factors reflect organizational barriers, insufficient know-how, and resistance to change, which create significant challenges for successful transformation. Many business process management initiatives fail due to lack of alignment with corporate change strategies, suggesting that workflow redesign does not automatically lead to effective organizational change [29]. A structured framework for managing organizational change during workflow redesign is often lacking, which can lead to misalignment and subsequent failure of business process management implementation [30]. Projects that use a one-size-fits-all approach are prone to failure because they do not adequately consider the specific situational requirements of different business contexts [31].

The benefits of business process transformation include improving efficiency through process optimization, ensuring high quality modelling, and effectively utilizing reengineering. Together, these factors lead to increased organizational performance and enhanced competitive advantage. Continuous analysis and optimization of business processes are essential to turn them into competitive advantages for enterprises and are key to guiding organizations in improving processes according to specific characteristics [32]. Business process reengineering serves as a tool for transforming inefficient processes, allowing for either redesign or replacement to achieve significant performance improvements. Case studies show that reengineering can be used across industries to increase overall productivity and service quality [27].

The main disadvantages of business process transformation include the complexity and opacity of process modelling, methodological challenges in implementing improvements, and potential resistance to change from employees. These factors can significantly limit the effectiveness of transformation activities, which means that it is important for organizations to address these challenges proactively and in a planned manner to ensure successful implementation of change. Many business process improvement approaches do not adequately describe the act of improvement itself, which can hinder effective transformation [33]. Implementing digital transformation initiatives can be particularly challenging in bureaucratic environments where existing processes may resist change due to their complexity [34]. Organizations can face significant barriers in managing the cultural and operational changes required for successful business process transformation, leading to potential resistance from stakeholders [35]. Transformation will only be successful if the consent to support the decision or change is obtained from the beginning from all the employees involved. It is the employees who know all the processes in the enterprise, probably better than any manager. Employees often make the most effective suggestions for improvement. And ultimately, they will have to implement all the required changes. Motivating employees to accept the changes and fully use their potential is important, which is important for all phases of business process optimization.

When an enterprise's management starts optimizing processes, it makes many unexpected discoveries during the optimization process, identifying and solving problems that it did not even know it had. It is necessary to reorganize not only the activities of individual employees or departments, but also, more importantly, their interfaces. Interfaces are weak points in business processes. These interfaces can only be effectively improved if they are precisely defined. Efficient information processing means that the required information is delivered to the required place at the required time. Just-in-time service provision in an enterprise is only achieved if the individual process interfaces, i.e. the required data, information and documents, are described so precisely that the enterprise's employees know exactly what to do. Once clearly defined routines have been developed, after a short period of time all activities can be performed as part of the same flow and delivered just in time [20].

6 Conclusion

The transformation of controlling is essential for industrial enterprises that are trying to respond effectively to dynamic changes in the business environment. The main reason is the need to modernize processes in order to improve the quality of management and strategic decision-making. Specific forms of organizational structures, especially staff structures,

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require change, as they often lead to inefficiency in management, conflicts of competence and excessive bureaucracy, which hinder flexibility and innovation.

One of the most important aspects of the transformation of controlling is the modernization of reporting, which becomes up-to-date, flexible and better adapted to the needs of management. Reporting is a key tool for providing information on the performance of the enterprise, and its optimization can significantly increase the quality of decision-making processes.

The main obstacle to implementing the controlling transformation is the lack of know-how and low awareness of its need of management. This deficit can lead to overlooking the potential of controlling as a strategic tool, which represents a serious deficiency in business management.

The greatest advantage of the controlling transformation is the standardization and simplification of controlling processes, which can bring higher efficiency, cost reduction and better coordination of teams. On the other hand, the disadvantage is the possible reduction in the quality of controlling data, especially during the transition period, which can lead to erroneous decisions and losses in business management.

Overall, however, the advantages that the controlling transformation brings significantly outweigh its disadvantages. If an enterprise can overcome the aforementioned obstacles, it gains a powerful tool for increasing its competitiveness and ability to adapt to the challenges of the modern market.

The theoretical contribution of the article lies in emphasizing the need for controlling transformation as a tool for increasing the efficiency of enterprises. The text expands theoretical knowledge on the impact of organizational structures, especially staff structures, on process modernization and identifies reporting as a key element of flexible management. Identification of barriers, such as lack of know-how and managerial awareness, reveals factors of change failure. The importance of transformation is also shown in the standardization and simplification of processes, which provides theoretical foundations for a better understanding of its impacts on organizations.

The practical benefit for industrial enterprises lies in the possibility of increasing efficiency through the transformation of controlling, which brings process standardization and simplification of management. For managers, this means better transparency and flexibility in reporting, which facilitates decision-making and rapid adaptation to changes in the business environment. In addition, the identification of barriers such as lack of know-how draws managers' attention to the need for education and strategic planning to support successful changes and increase the competitiveness of their enterprises. Future research can examine how the transformation of controlling affects different types of organizational structures, especially staff organizational structures, which require adaptation to modern management processes and improved flexibility. At the same time, it is necessary to analyse how new reporting tools can support management efficiency in different industrial sectors. Attention should also be paid to the design of strategies to address barriers such as lack of know-how to ensure the smooth integration of innovations in the field of controlling.

Limitations of the research may include limited data on industrial enterprises in Slovakia, which may affect the generalizability of the conclusions. Another limitation is the focus on specific types of organizational structures, which does not take into account the specifics of other models. The lack of knowledge about the practical application of modern reporting tools or the analysis of their long-term impacts may also limit the depth of the results. These limitations indicate the need for broader and more comprehensive research.

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