

PROCESS MANAGEMENT OF ORGANIZATIONAL CHANGES IN THE CASE OF EDUCATION PROCESS WITHIN ORGANIZATIONS

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In the rapidly changing business environment of recent years, organizations aim to constantly improve efficiency and effectiveness by adding value to products and services for their clients. One of the most critical factors is employees' knowledge and skills, which organizations address through modern technology. Exploring digital solutions revealed potential benefits: environmental impact, resource efficiency, accessibility, scalability, data insights, innovation opportunities, and economic competitiveness. This article explores the transformative potential of integrating digitalization into traditional education processes. We conducted a thorough analysis using the EPC technique with the ARIS tool, resulting in a well-documented and conceptually developed digital education process. Comparing traditional and digitalized processes, we investigate education process challenges. The outcome reveals a dynamic education process with fewer activities and documents, a bigger percentage of activities supported by the information technology, and a shorter process throughput time. With summarizing achievements, this article guides organizations in considering a similar transition.

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1 Introduction

The purpose of organizations is to constantly improve the efficiency and effectiveness of operations by continually creating added value in products and services for customers (Plucinski and Gruchman, 2002). Adaptability and innovation have become critical in the landscape of contemporary organizational dynamics. In several ways, the most important factors are employees, processes, and resources. Of course, it is important that employees are constantly educated and trained in their fields and that the management provides quality education with an optimal education process. Organizations know the described need and recognize the increasing opportunities of modern information-communication technology. With information-communication technology evolving and accelerating, organizations must continuously rethink their operational approaches (Aleksić, 2014). This article delves into the complexities of organizational change management in education, focusing on the integration of digitalization. As the educational landscape shifts from traditional methods to a digitally enhanced future, we highlight the key challenges organizations encounter in this transformation and articulate the core purpose of this research.

The lack of a digital platform for the education process within organizations poses significant challenges. The conventional print-centric approach primarily contributes to increased paper consumption and a substantial carbon footprint, leading to environmental impact (Optimod A, 2023). Resource inefficiency is another issue, as traditional methods consume time, physical space, and necessitate travel, conflicting with sustainable practices and economic growth. Limited accessibility and inclusivity are critical concerns, hindering education outreach to remote areas and individuals with mobility limitations. Physical meeting and seminar scalability limitations further restrict audience reach. The absence of a digital platform also deprives organizations of essential data insights, innovative teaching opportunities, and the ability to adopt emerging educational technologies. Failure to include digitalization in business processes can jeopardize organizations' growth and competitiveness in today's increasingly digitalized environment. The above can potentially result in a loss of market share.

This article aims to uncover the intricate process driving organizational change in education. We tested the possibilities offered by digitalization with the help of the Business Process Management approach. We used the ARIS tool and the EPC technique and made a comparative analysis with structural and operational efficiency indicators. The result of the article is an analysis of the opportunities and challenges organizations face when implementing organizational changes (e.g., digitalization) in the field of the education process. The narrative goes beyond technicalities, highlighting the roles of stakeholders, communication pathways, and activities in crafting a dynamic and sustainable educational platform. This article provides insights, guidance, and a compelling narrative that transcends conventional organizational change management discourse, paving the way for an innovative and accessible future in education.

2 Theoretical overview

The chapter is divided into two parts: a presentation of the Business Process Management approach and a presentation of the Education Center, which has a digital education process that we analyze.

2.1 Business Process Management

Process orientation is essential and profoundly impacts many aspects of the organization. Through process orientation, the ways of communication and work change. There is an integration of Business Process Management and an increase in the connection between functional departments (Kregel et al., 2021), but also an improvement of overall business performance by adopting a process view of business. A business process is a combination of activities in an organizational and technical environment with a structure that describes their logical sequence and dependencies to achieve the desired result and achieve a business goal (Aguilar-Saven, 2004; Weske, 2007). When changing or improving business processes, it is first necessary to ask what is to be achieved by the change, i.e., what is the goal of the change. Next comes the question about the required change to achieve the set goal in the business process improvement (Krhač Andrašec, 2022). When the business process is successfully applied and implemented, new questions may appear that need to be answered, such as whether our goal is achievable and how we will act in the future (Urh, Kern in Roblek, 2010).

The answer lies in the Business Process Management approach, which aims to achieve a dynamic cycle of continuous improvements and enable significant gains in the efficiency and success of both the product and the overall aspects of the business. Identifying key business processes and their development and continuous improvement makes it possible to focus on clients and their greater satisfaction (Plucinski and Gruchman, 2002). The extensive literature on Business Process Management suggests how organizations can improve performance by adopting a process view of business. However, most literature lacks research or empirical focus (Milanović Glavan, 2014). Business Process Management is a systematic and structured approach to analyzing, improving, controlling, and managing processes to enhance the quality of products and services. It also encompasses a series of tools and techniques for improving the performance of business processes, whether they be categorized as operational, support, or directions set (Elzinga et al., 1995; Armistead et al., 1997). Business Process Management is both the art and science of overseeing how work is performed in an organization. Its primary goals are to ensure consistent outcomes and identify improvement opportunities. Typical examples of improvement objectives include reducing costs, execution times, and error rates. It is about managing entire chains of events, activities, and decisions that ultimately add value to the organization (Dumas et al., 2013). Using Business Process Management, the organization is viewed as a series of functional processes linked across the organization, which is how the work gets done (DeToro and McCabe, 1997).

In recent years, challenges involving information and communication technologies have become increasingly prevalent in creating and implementing business processes. Information and communication technology changes and evolves every day. As a result, it is necessary to respond to these changes and the challenges of the environment on time. Therefore, business processes require constant changes with evident improvement. Business Process Management is a management approach that developed with a strong focus on adopting information technology (Vom Brocke and Sinnl, 2011). It plays a pivotal role in the organizational changes explored in this article, particularly concerning implementing digitalization into education processes.

2.2 Education Center

Education Center goes beyond the conventional definition of a facility or institution, embodying a dynamic space where knowledge is imparted and nurtured to empower entrepreneurs at every stage of their journey. Through its operation, it systematically deals with challenges in various areas in the entrepreneurial environment. It is a versatile hub for collaborative knowledge exploration, creating continuous intellectual development. The Education Center is committed to facilitating an interactive and immersive learning environment, providing enriched experiences for personal and professional development.

While many education centers cater to specific demographics or focus areas, the Education Center we describe stands out with its unique target audience. Unlike institutions that may prioritize academic students or specialize in one professional field, this Center embraces a more inclusive approach. It specifically addresses the needs of a diverse group, targeting a broad audience that includes entrepreneurs, founders, business professionals, CEOs, students, and individuals passionate about learning. This positioning allows the Education Center to become an inclusive educational space that empowers learners across diverse domains. It features distinct tracks for leadership development, networking opportunities, and skill-building resources (Optimod B, 2023).

The Education Center is transforming to align with the evolving modern landscape. This includes recalibrating business processes, integrating cutting-edge technologies, and adapting organizational strategies for sustained relevance and competitiveness. This entails redefining processes supporting the educational journey in a digital format (Optimod C, 2023).

3 Methodology and results

In tandem with implementing redesigned education processes, the Education Center is envisioned as a knowledge repository. This repository grants access to various educational resources such as pre-recorded webinars, white papers, e-books, and case studies. It endeavors to provide tailored resources that cater to a diverse audience, thereby actively contributing to the intellectual growth of its participants.

The Education Center and its digital education process can be applied to various organizations, but its effectiveness can vary depending on factors such as organizational size and industry type. For example, larger organizations with diverse processes may require more complex models. Customization to meet specific organizational needs is key to optimizing results and optimal performance.

In support of the presented in the preceding chapters, this article delves into two primary views of the education process:

- processes impacting user experience,
- processes affecting internal organizational aspects.

Numerous processes fall under the highlighted views:

- Processes impacting user experience - student registration and enrolment process, curriculum access, communication channels, assessment and feedback, student support, library service/resource management, interactive learning, graduation ceremony, etc.
- Processes affecting internal organizational aspects - student registration and enrolment process, curriculum development and research, class scheduling, speaker booking, technology integration, assessment and evaluation, administrative processes, resource management, student record management, communication channels, event planning, budgeting and financial processes, continuous improvement, etc.

This article focuses on the education process from both views, where the traditional education process is shown in the AS-IS model (Figure 1), and the redesigned education process is designed in the TO-BE model. Figure 1 presents a structured flowchart outlining the conventional steps involved in the educational process, typical of a non-digital, traditional learning environment. We used the ARIS tool's EPC technique to display the selected process models. Each model is equipped with several key objects for comprehensive structural analysis, including the number of activities, the number of employees (positions), the number of documents or information-communication technology, the number of decisions, and other pertinent factors. Also, we prepared a second model that vividly depicts the redesigned education process and represents the TO-BE state after integrating

digital technologies and modern methodologies. The model portrays a dynamic and interconnected flowchart emphasizing flexibility, digital interaction, and learner-centric approaches.

For a better comparison of the traditional education process with the digital education process (Figure 2), we created a structural analysis (Urh et al., 2019) that evaluates the process across several different indicators (Table 1).

Table 1: Structural analysis

Process	No. of activities	No. of employees (positions)	No. of documents	No. of decisions	Per. of activities supported by the information technology
Traditional	34	3	12	3	44,12%
Digital	30	3	6	3	93,33%

Source: own research

The table demonstrates that the education process exhibited structural improvements after the redesign, with enhancements we made in three out of the five most crucial structural indicators (Krhač Andrašec, 2022):

1. The number of activities decreased by 11.76 %,
2. The number of documents decreased by 50%,
3. The percentage of activities supported by the information technology improved by 49.21%.

The remaining two indicators did not deteriorate but remained the same as in the traditional education process.

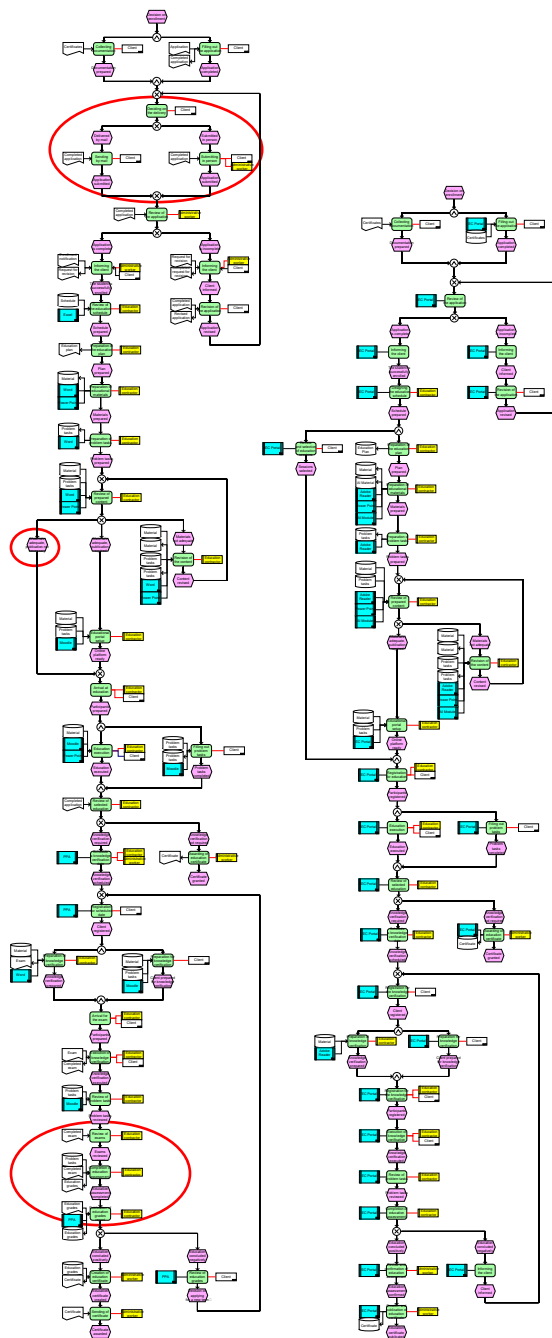


Figure 2: Comparison of the traditional education process and the digital education process

Source: own research

Furthermore, each process undergoes a detailed operational analysis covering the time dimension. To calculate the throughput time of individual process activities, each activity was divided into wait time, orientation time (preparation-finishing time), and processing time (Davis, 2008). The times presented in Table 2 represent average estimates of individual activity execution. It's worth noting that the times may vary for each education center due to various factors.

Table 2: Extract of the time analysis results of the traditional education process

EPC: Traditional		Time (function is carried out once)		
Function	Processing time	Orientation time	Processing/Orientation sum per	Wait time
Revision of the content	480 Minute(s)	5 Minute(s)	485 Minute(s)	0,5 Minute(s)
Revision of the application	30 Minute(s)	5 Minute(s)	35 Minute(s)	480 Minute(s)
Filling out problem tasks	30 Minute(s)	5 Minute(s)	35 Minute(s)	10 Minute(s)
Filling out the application	30 Minute(s)	5 Minute(s)	35 Minute(s)	
Education execution	180 Minute(s)	5 Minute(s)	185 Minute(s)	10 Minute(s)
Education execution	180 Minute(s)	5 Minute(s)	185 Minute(s)	
Execution of knowledge verification	60 Minute(s)	10 Minute(s)	70 Minute(s)	10 Minute(s)
Execution of knowledge verification	60 Minute(s)	10 Minute(s)	70 Minute(s)	
Creation of education certificate	60 Minute(s)	10 Minute(s)	70 Minute(s)	960 Minute(s)
Publication of education grades report	30 Minute(s)	1 Minute(s)	31 Minute(s)	0 Minute(s)
Informing the client	15 Minute(s)	3 Minute(s)	18 Minute(s)	1 Minute(s)
Informing the client	15 Minute(s)	3 Minute(s)	18 Minute(s)	
Informing the client	15 Minute(s)	3 Minute(s)	18 Minute(s)	
Submitting in person	5 Minute(s)	3 Minute(s)	8 Minute(s)	480 Minute(s)
Submitting in person	5 Minute(s)	3 Minute(s)	8 Minute(s)	
Deciding on the delivery	10 Minute(s)		10 Minute(s)	
Awarding of education certificate	60 Minute(s)	10 Minute(s)	70 Minute(s)	960 Minute(s)
Sending of certificate	5 Minute(s)	5 Minute(s)	10 Minute(s)	480 Minute(s)
Sending by mail	5 Minute(s)	10 Minute(s)	15 Minute(s)	480 Minute(s)
Review of problem tasks	480 Minute(s)	10 Minute(s)	490 Minute(s)	480 Minute(s)
Review of selected education	30 Minute(s)	5 Minute(s)	35 Minute(s)	480 Minute(s)
Review of exams	240 Minute(s)	10 Minute(s)	250 Minute(s)	480 Minute(s)
Review of education grades	5 Minute(s)	5 Minute(s)	10 Minute(s)	180 Minute(s)
Review of the content	60 Minute(s)	1 Minute(s)	61 Minute(s)	15 Minute(s)
Review of the education schedule	15 Minute(s)	0,5 Minute(s)	15,5 Minute(s)	9600 Minute(s)
Review of the application	10 Minute(s)	10 Minute(s)	20 Minute(s)	480 Minute(s)
Arrival at education	60 Minute(s)	60 Minute(s)	120 Minute(s)	3360 Minute(s)
Arrival at education	60 Minute(s)	60 Minute(s)	120 Minute(s)	

Source: own research

The time analysis of the current, traditional education process (the AS-IS state) shows significant delays mainly due to long waiting times and manual processing. Paperwork and the need to be physically present at locations add to these hold-ups. Plus, these steps take even longer because they are done by hand, which is slow and less convenient for everyone involved. Simply put, the current way is time-consuming and not user-friendly, highlighting the need for a more modern, digital approach that could speed things up and make the process easier for users. The exposed challenges are also shown in Table 3, which shows the savings of each type of time after redesigning the education process.

Table 3: Comparison of time analysis

EPC	Time					
Process	Processing time	Orientation time	Processing /Orientation sum per	Wait time	Sum (min)	Sum (h)
Traditional	14521	444,5	14965,5	23747,5	38713	645,2 2
Digital	14244	145,5	14389,5	9379	23768,5	396,1 4
Progress	1.91 %	67.27 %	3.85 %	60.51 %	38.60 %	

Source: own research

Table 3 shows that after the digital redesign, the process improved by 67.27 % in terms of orientation time and 60.51 % in terms of waiting time. In total, this means that the throughput time of the education process was reduced by 38.60 %.

4 Discussion and conclusion

The article has examined the transformative journey of integrating digitalization into the education processes within organizations. At its core, it illuminates this transition's benefits and challenges, especially in a business environment increasingly reliant on rapid adaptation and technological advancements. The compelling narrative underscores digitalization as a strategic necessity in enhancing employee skills and operational efficiency. The employment of the EPC technique and the ARIS tool has been instrumental in revealing the stark contrasts between traditional and digitalized education processes. These insights offer a comprehensive view of the improvements, most notably in environmental sustainability, structural and operational efficiency, and accessibility. In parallel, studies by Kern et al. (2019) and Krhač Andrašec et al. (2021) have demonstrated similar structural and time enhancements achieved through implementing digitalization in the coatings industry.

Digital transformation, however, is not without its challenges. The most pronounced investment is required to establish a fully digitized education process. Organizations must weigh this against the long-term operational cost savings and the myriad opportunities digitalization presents, including resource efficiency, scalability, and innovation. This initial financial commitment is a pivotal consideration but is offset

by the long-term benefits and the potential for continuous improvement. Regarding operational costs, the shift to digital processes promises significant reductions, primarily in transportation and time-related expenses. Yet, this transition brings into question the quality of education, which can be addressed by increasing the available digital resources and continuously refining these tools. On the flexibility front, while digitalization might initially seem to limit options to a single process, it inherently offers greater flexibility regarding scheduling and geographical independence, thereby enhancing the ability to balance other obligations more effectively.

Digitalizing the education process within organizations is a technological shift and a strategic move towards more sustainable and efficient educational practices. The time analysis of the redesigned digital process exemplifies a significant leap in efficiency and user experience. Automation has streamlined process, reducing manual intervention and hastening task completion while diminishing the potential for human error. Furthermore, the digital platform eradicates the need for physical presence, enabling remote access to educational services and broadening the reach to a more diverse audience. This transformation has led to a leaner, more efficient, and user-centric education process. Reflecting on the findings of Kern et al. (2019) and Krhač Andrašec et al. (2021), the significant structural and operational (time) efficiency improvements in other sectors underscore the versatile benefits of digitalization.

However, this study's limitations include modeling the education process in a generic version without specifically analyzing different process variants and relying on average time estimations and rough assessments. Despite these constraints, we have successfully demonstrated digitalization's substantial benefits and improvements to organizational education.

As organizations continue to navigate the complexities of the digital era, they must acknowledge the importance of this transition for maintaining competitiveness and contributing to operational efficiencies and a more environmentally conscious and resource-efficient world. Looking ahead, embracing continuous learning and adaptation, along with a readiness to invest in new technologies, will be crucial in shaping the future of organizational education. Building on the insights from this article, future research could significantly enhance the digitalization of education processes within organizations, drawing inspiration from the advancements in other

industries. This could include conducting long-term impact studies to analyze the effectiveness of digital education, assessing efficiency, and pinpointing improvement areas. Additionally, research could focus on customizing digital education tools across various industries and organizational sizes. Considering the psychological and social impacts, especially on employee engagement, motivation, and team dynamics, is also vital. Integrating artificial intelligence, virtual reality, and augmented reality into digital education platforms could provide insights into enhancing learning experiences and engagement. Furthermore, performing cost-benefit analyses of digital education models would help optimize investments and explore funding models and long-term cost-saving strategies. Finally, developing frameworks for evaluating the quality of digital education content would establish benchmarks for continuous improvement, thus deepening the effectiveness of digital education in organizational development.

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