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INTEGRATION OF DIGITAL TECHNOLOGIES, BUSINESS PROCESSES AND HUMAN RESOURCE MANAGEMENT IN THE CONCEPT OF SOCIETY 5.0

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Abstract:

The concept of Society 5.0 represents a contemporary development framework based on the integration of digital technologies, business processes, and human resources, with the aim of improving organizational efficiency and competitiveness in modern business conditions. Digital transformation leads to significant changes in business processes, organizational structure, and human resource management, requiring organizations to adapt their management models to the digital environment. The aim of this paper is to analyze the relationship between the digital transformation of business processes and human resource management in the context of Society 5.0. The methodological approach of the paper is based on theoretical analysis and conceptual consideration of the relationship between digital transformation, business processes, and human resource management. The results indicate that the integration of digital technologies, business processes, and human resources represents a key factor in improving organizational performance and achieving sustainable competitive advantage in Society 5.0.

Keywords: *Society 5.0, digital transformation, business processes, human resource management, digital competences, organizational performance, ...*

Introduction

Modern organizations operate in conditions of intensive digitalization, which significantly affects business processes and human resource management. The development of technologies such as artificial intelligence, the Internet of Things, and data analytics has led to the transformation of business models and organizational structures, which is particularly evident within the concept of Society 5.0 [1]. Digital transformation represents a process of improving business operations through the application of digital technologies, whereby processes become automated and data-driven, enabling greater efficiency and productivity [2][3]. However, its success does not depend solely on technology, but also on human resources and their competencies, which represent a key factor of organizational competitiveness [4],[5].

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The subject of this paper is the analysis of the impact of digital transformation on business processes and human resources within the concept of Society 5.0, with the aim of developing an integrative model and empirically testing the relationships between key variables. Although extensive research addresses digital transformation, most studies examine these relationships in a fragmented manner, lacking an integrated perspective. This study addresses this gap by developing and empirically validating an integrative model linking digital technologies, business processes, and human resource management within Society 5.0.

1. Integration of Business Processes and Human Resources in the Context of Society 5.0

The concept of Society 5.0 represents a contemporary socio-economic framework based on the integration of digital technologies and human capabilities aimed at improving quality of life and business efficiency [1]. It is characterized by a strong integration of the physical and digital environment, where digital technologies play a key role in transforming modern organizations. Digital transformation acts as a central driver of change in such an environment, encompassing not only the adoption of new technologies but also transformations in business processes, organizational structures, and management practices [2]. It enables organizations to enhance value creation, improve operational efficiency, and develop competitive advantages [6].

Its impact is particularly evident in business processes, which become automated, digitalized, and data-driven. The application of technologies such as smart connected products, cloud platforms, and ERP systems contributes to increased productivity, cost reduction, and improved business performance [3]. This transformation is closely linked to the concept of Industry 4.0, which integrates advanced digital systems into unified organizational structures, enabling real-time decision-making and enhanced efficiency [7],[4].

At the same time, the success of digital transformation largely depends on human resources and their competencies. The development of digital technologies requires new skills and adaptability, while automation and artificial intelligence redefine the role of employees in organizations [8],[5]. Therefore, digital transformation of business processes can be considered a key driver of organizational development within Society 5.0, where the integration of technology, processes, and human resources enables sustainable competitive advantage.

2. Empirical Findings and Quantitative Basis of the Digital Transformation Model

Contemporary empirical research indicates that digital transformation has a significant and multidimensional impact on organizational performance, with key effects arising from the integration of digital technologies, business processes, and human resources. It is understood as a complex organizational phenomenon involving technological, process, and structural changes, rather than merely the implementation of new technologies [9],[10]. Empirical evidence confirms both direct and indirect effects of digital transformation on organizational performance. Research results [9] identify a significant direct effect ($\beta \approx 0.42$), as well as an indirect effect mediated by business processes ($\beta \approx 0.31$), highlighting their mediating role. Additional studies emphasize the importance of process transformation, showing that the effects of digital technologies are realized through improved operational efficiency and process optimization [11],[12].

Furthermore, digital transformation influences employee performance and behavior, with factors such as engagement and technostress playing a critical role [13]. It also contributes to innovation performance, depending on organizational and strategic conditions [14]. In this context, employees' digital competencies emerge as a key determinant of successful transformation, enabling effective technology utilization and improved outcomes [15]. Overall, digital transformation operates through complex interdependencies among technology, business processes, and human resources. Digital technologies act as the primary driver, business processes serve as a mediating mechanism, and human resources function as a moderating factor influencing the intensity and success of transformation. Accordingly, an integrative model can be developed as a theoretically and empirically grounded framework for analyzing digital transformation within the concept of Society 5.0.

3. Methodology and Research Results

Based on prior empirical findings, a conceptual structural model is developed to explain the relationships among digital technologies, business processes, human resources, and organizational performance. The model assumes that digital technologies act as the primary driver of transformation, while their impact on performance is realized indirectly through business process digitalization, with human resources playing a

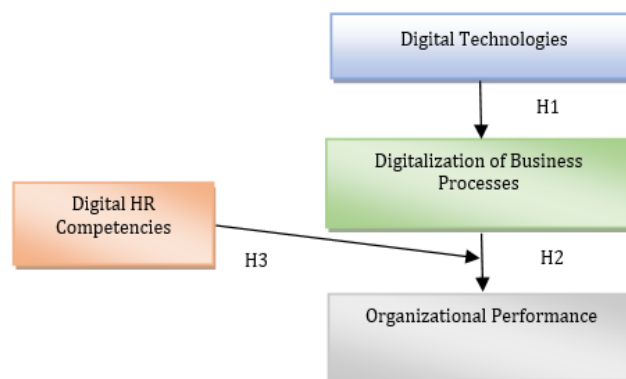
moderating role. The model includes four latent variables: digital technologies (AI, IoT, Big Data), digitalization of business processes, digital competencies of human resources, and organizational performance. Empirical studies confirm statistically significant relationships among these variables ($\beta \approx 0.31-0.42$), providing a foundation for hypothesis development. Three hypotheses are formulated for empirical testing.

H1 assumes that digital technologies have a positive and significant effect on business process digitalization, as they enable automation and process optimization [9],[10],[11].

H2 states that digitalization of business processes positively affects organizational performance by improving efficiency and productivity [11],[12],[13].

H3 proposes that digital competencies of employees moderate the relationship between process digitalization and organizational performance, enhancing transformation outcomes [14],[15].

The model is based on defined hypotheses and captures both direct and indirect effects of digital transformation. Digital technologies influence performance indirectly through business processes, while human resources strengthen this relationship as a moderating factor.



Picture 1. *Structural model of digital transformation*

The table 1 confirms that digital transformation is not purely technological but a systemic organizational process. Technologies act as a prerequisite, processes generate results, and human resources function as a key catalyst.

Table 1: *Explanation of variables and relationships in the model*

Model element	Function	Description
H1 (Direct)	Prerequisite	Digital technologies enable automation and digitalization of processes.
H2 (Direct)	Outcome	Process digitalization improves efficiency, speed, and performance.
H3 (Moderation)	Catalyst	Digital competencies strengthen the effect of processes on performance.

Source: *Authors' research*

To empirically test the proposed digital transformation model, a quantitative research design was applied using a structured survey questionnaire. The methodological approach relies on Structural Equation Modeling (SEM), enabling the analysis of direct and moderating relationships among digital technologies, business processes, and human resources. The study was conducted on a sample of N=247 respondents from organizations implementing digital technologies across different sectors. Data were collected via an online survey using a five-point Likert scale. Latent variables were operationalized based on prior literature, capturing technology adoption, process digitalization, employee competencies, and organizational performance. Data analysis was performed using IBM SPSS Statistics and AMOS, including descriptive statistics, reliability analysis, correlation analysis, confirmatory factor analysis, and SEM. Model validity was assessed through standard fit indices (CFI, TLI, RMSEA, χ^2/df). Hypotheses were tested using path coefficients (β) at $p < 0.05$. The study is limited by sample size, subjective responses, and the dynamic nature of digital technologies. The findings indicate a relatively high level of perceived digital transformation, as shown in Table 2.

Table 2: *Descriptive statistics*

Variable	Mean	Std. dev
Digital technologies	3.94	0.81
Business processes	3.78	0.85
Human resources	4.02	0.76
Organizational performance	3.89	0.79

Source: *Authors' research*

Results suggest strong levels of digital competency and technology adoption, while business processes are slightly lower rated, indicating a potential gap between technological implementation and full process

integration. All constructs demonstrated high reliability (Cronbach's $\alpha > 0.70$), confirming internal consistency. Further analysis using Pearson correlation revealed significant positive relationships among all variables ($p < 0.01$), as shown in Table 3.

Table 3: Correlation Analysis

Variables	r
Technologies - processes	0.68**
Processes - performance	0.71**
HR - performance	0.74**

Source: *Authors' research*

The strongest relationship is observed between human resources and organizational performance, highlighting the importance of employee competencies. SEM analysis confirmed a good model fit (CFI=0.93; TLI=0.91; RMSEA=0.067; $\chi^2/df=2.14$), indicating model validity. Hypothesis testing results are presented in Table 4.

Table 4: Hypothesis Testing Results

Hypothesis	β	p-value	Status
H1	0.64	<0.001	Supported
H2	0.58	<0.001	Supported
H3	0.29	<0.01	Supported

Source: *Authors' research*

The results show that digital technologies significantly influence business process digitalization, which in turn significantly affects organizational performance. Additionally, digital competencies have a significant moderating effect, strengthening this relationship.

The empirical results provide strong support for the proposed conceptual model and confirm the theoretical assumptions underlying digital transformation. The findings indicate that digital technologies primarily influence organizational performance indirectly, through the digitalization of business processes, which is consistent with prior studies emphasizing the mediating role of processes [9]. The results highlight the critical importance of human resources, whose digital competencies significantly strengthen the relationship between process digitalization and organizational performance. This finding aligns with previous research that identifies employee skills and organizational readiness as key determinants of successful digital transformation [14],[15]. The

strong correlations observed among the analyzed variables further confirm the systemic nature of digital transformation, suggesting that its success depends on the simultaneous integration of technology, processes, and human resources. These results reinforce the view that digital transformation should not be approached as a purely technological initiative, but as a comprehensive organizational change process.

4. Conclusion

The empirical findings confirm that all proposed hypotheses are supported. Digital technologies significantly influence the digitalization of business processes, which in turn has a strong positive impact on organizational performance. In addition, digital competencies of human resources significantly strengthen this relationship, confirming their moderating role in the digital transformation process. These results are consistent with prior research. The mediating role of business processes aligns with the findings of Verhoef et al. [9], while the importance of human resources and their competencies is supported by studies such as Imran et al. [15] and Duan et al. [14]. The results also confirm that digital transformation is not solely a technological phenomenon, but a systemic process involving multiple organizational dimensions.

The study demonstrates that successful digital transformation depends on the integration of technology, business processes, and human resources, which represents a key prerequisite for improving organizational performance and achieving sustainable competitive advantage within the context of Society 5.0. The findings also provide important practical implications, emphasizing that organizations should adopt a holistic approach by simultaneously advancing digital technologies, optimizing business processes, and continuously developing employees' digital competencies.

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