ORGANIZATIONAL RESILIENCE AND WORKPLACE ADAPTATION AT A HUNGARIAN DEFENCE COMPANY DURING THE COVID-19 PANDEMIC: LESSONS AND EXPERIENCES FOR FUTURE CRISIS MANAGEMENT

Doctoral (PhD) thesis abstracts

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Introduction

The COVID-19 pandemic has caused a complex and protracted crisis that has fundamentally transformed the way organizations operate around the world. The pandemic has not only posed a health challenge, but has also affected workforce organization, resource allocation, technology use, and the physical and psychological well-being of employees. This is particularly true for organizations belonging to critical infrastructure, where ensuring business continuity has been of paramount strategic importance.

Defense companies operate in a unique organizational environment: their activities are governed by strict security, hierarchical, and procedural frameworks, while in a crisis situation they must meet heightened operational expectations. During the COVID-19 pandemic, these organizations had to simultaneously maintain their core tasks, protect the health of their employees, and quickly adapt to constantly changing external conditions.

The international literature has widely addressed the workplace effects of the pandemic, but relatively little empirical research has examined, using a longitudinal or retrospective approach, how workplace adaptation processes evolved within the same organization during different phases of the pandemic, which measures proved to be temporary, and which remained in place permanently. There is a particular lack of theory-driven empirical evidence relating to large defense industry companies belonging to critical infrastructure.

This doctoral dissertation aims to fill this gap. The aim of the research is to explore how a Hungarian defense company responded to the extraordinary operational challenges caused by the COVID-19 pandemic, how the organization's resilience and workplace adaptation developed before, during, and after the pandemic, and what lessons can be learned for future crisis management.

Scientific objectives and definition of the research problem

The COVID-19 pandemic has highlighted that organizational resilience is not a static characteristic, but a multidimensional phenomenon that changes over time and is influenced simultaneously by organizational structures, workplace resources, management practices, and the technological solutions employed. The research problem stems from the recognition that some of the organizational and workplace measures introduced during the crisis will be phased out once the crisis is over, while other elements will be permanently integrated into organizational operations, but empirical exploration of these processes is limited.

The scientific objective of the dissertation is to examine the impact of the COVID-19 pandemic on the organizational health practices, preparedness and respons es, workplace adaptation processes, employee well-being, and acceptance of digital technologies at a Hungarian defense company. The research also aims to interpret how these changes

contributed to—or limited—the sustainability of organizational resilience during different phases of the pandemic.
The theoretical framework of the study is based on the integrated application of the Job Demands–Resources Model (JD–R), Self-Determination Theory (SDT), and the Technology Acceptance Model (TAM). These frameworks enable the joint interpretation of workplace demands and resources, psychological needs, and technological adaptation.
The research is based on exploratory and interpretive empirical analysis rather than testing pre-formulated hypotheses. Accordingly, the dissertation is structured around the following research questions:

1. What organizational and workplace challenges did the COVID-19 pandemic pose for the defense company under study, and how did these challenges manifest themselves in the perceptions of employees and managers?
2. How did organizational health practices, preparedness measures, and response strategies change before, during, and after the pandemic?
3. What patterns can be observed in the evolution of workplace adaptation, and which changes proved to be temporary or permanent?
4. How did employee well-being and work-life balance evolve during the different phases of the pandemic?
5. What role did digital technologies and IT tools play in the transformation of work, and how did their acceptance change?
6. What lessons can be learned from the organizational practices examined in terms of preparing for future crises?

Research methodology

The empirical study of the dissertation is based on a mixed methodological approach, which uses both quantitative and qualitative elements to comprehensively answer the research questions. The methodological framework was developed because organizational resilience and workplace adaptation are complex phenomena that require both the identification of quantifiable patterns and contextual interpretation.

The central empirical element of the research was a retrospective, cross-sectional questionnaire survey that examined employee perceptions before, during, and after the COVID-19 pandemic. A total of 564 people participated in the survey, representing different organizational units and job roles within the security company under study. The questionnaire contained several thematic blocks covering organizational health practices, preparedness and response measures, forms of workplace adaptation, dimensions of employee well-being, and the adoption of digital technologies.

Quantitative data collection was supplemented by qualitative data collection. Semi-structured interviews were conducted with government, state, and healthcare actors in order to place the

company-level results in a broader crisis management and institutional context. The interviews did not serve as comparable quantitative data, but solely supported contextual interpretation.

Descriptive statistical methods, analyses of variance (ANOVA), and correlation tests were used in data processing and analysis. The aim of the analysis was not to prove causal relationships, but to explore trends and patterns between pandemic periods. The theoretical frameworks of JD-R, SDT, and TAM served as the interpretive background for the analyses.

Literature review

The literature review in the dissertation covers the topics of organizational resilience, workplace adaptation, and technology acceptance, with a particular focus on the workplace and organizational impacts of the COVID-19 pandemic. The purpose of the literature review was to provide a theoretical basis for the research and to provide the conceptual and contextual framework necessary for interpreting the research results.

The literature review covered international and domestic peer-reviewed scientific publications, systematic reviews, empirical studies, and relevant policy and institutional documents. The review covered the pandemic-related aspects of workplace stress, well-being, work-life balance, organizational adaptation, and the use of digital technologies in the workplace.

The following international databases were used in the systematic literature search: PubMed, Scopus, and Web of Science. The searches were conducted in several rounds, using predefined keywords and keyword combinations. The most frequently used search terms included "organizational resilience," "workplace adaptation," "job demands–resources," "self-determination theory," "technology acceptance," "COVID-19," and their Hungarian equivalents.

The selection criteria included studies that empirically or theoretically examined pandemic-related workplace changes, the evolution of organizational resources and job demands, employee well-being, and the acceptance of digital technologies. Publications that approached COVID-19 exclusively from a clinical, epidemiological, or technical perspective, without addressing workplace and organizational implications, were excluded.

Research based on the Job Demands-Resource Model (JD-R), Self-Determination Theory (SDT), and the Technology Acceptance Model ( ) played a prominent role in the literature review. These studies provided the theoretical background that enabled the joint interpretation of workplace stressors, resources, psychological needs, and technological adaptation in the pandemic environment.

In addition to the international literature, domestic and international reports presenting the effects of the COVID-19 crisis on health, defense, and critical infrastructure were also reviewed. These materials contributed to the understanding of the operating environment and institutional

characteristics of the defense company under study.

The literature review revealed that relatively little empirical research has been conducted on the temporal evolution of pandemic-related organizational adaptation processes, especially within a single organization. This finding confirmed the research relevance of the dissertation and justified the use of a retrospective, multi-period comparative empirical approach.

Data analysis

The empirical analysis of the dissertation relies primarily on primary data sources, which I collected through a retrospective questionnaire survey conducted within an organization. The study involved employees of a Hungarian defense company with nationwide coverage and aimed to explore organizational and workplace changes related to the COVID-19 pandemic before, during, and after the pandemic.

A total of 564 people were involved in the quantitative data collection. The sample represented different organizational units, job positions, and hierarchical levels within the company. The questionnaire contained structured questions on organizational health practices, preparedness and response measures, forms of workplace adaptation, physical and mental dimensions of employee well-being, and the acceptance of digital technologies and IT tools. The questions were formulated retrospectively in order to make changes between pandemic periods comparable.

The interpretation of the indicators and constructs used in the data analysis was guided by the theoretical frameworks of the Job Demands–Resources Model (JD–R), Self-Determination Theory (SDT), and the Technology Acceptance Model (TAM). These theoretical approaches served not as independent causal models, but as interpretive frameworks for structuring and analyzing empirical data.

The quantitative data was supplemented by qualitative data sources. Semi-structured interviews were conducted with government, state, and healthcare actors in order to interpret the adaptation and resilience processes identified at the corporate level in a broader institutional and crisis management context. The interviews did not serve as a basis for quantitative comparison, but only supported the interpretation and contextualization of the research results and .

Descriptive statistics, variance analyses (ANOVA), and correlation tests were used in the statistical processing of the data. The aim of the analyses was to identify trends and patterns between pandemic periods. The data analysis was not aimed at proving causality, but at empirically describing and interpreting the development of organizational adaptation and resilience.

New scientific findings

1. The COVID-19 pandemic simultaneously caused organizational, workplace, and individual challenges in the operations of the defense company under review, which were perceived differently by employees and managers. According to the research results, ensuring business continuity, protecting the workforce, and rapid decision-making were the main challenges in the early stages of the pandemic. These challenges manifested themselves as increased mental stress and uncertainty on the part of employees, while at the management level they primarily manifested themselves as organizational and resource allocation problems.

2. Organizational health practices and preparedness and response measures intensified during the pandemic but declined somewhat after the pandemic ended. Empirical data show that the intensity of health protection and crisis management measures introduced during COVID-19 was periodically higher than before and after the pandemic. This suggests that certain elements of organizational resilience are activated in crisis situations, but their long-term maintenance is not automatic.

3. Adaptation in the workplace did not take place in a uniform manner; some elements proved to be temporary, while others proved to be permanent. The research showed that adaptations related to digital work and procedures remained in place to a greater extent after the pandemic, while some solutions, mainly those related to extraordinary measures, gradually disappeared. This distinction makes it possible to separate temporary and permanent organizational changes.

4. Employee well-being and work-life balance were sensitive to changes during the pandemic. The results show that indicators related to mental well-being and work-life balance deteriorated during the pandemic, while a partial improvement was observed after the pandemic. However, the restoration of well-being was slower than the stabilization of organizational functioning.

5. Digital technologies and IT tools played a central role in the transformation of work, and their acceptance varied over time. Analyses based on the Technology Acceptance Model showed that those tools that were perceived as highly useful and easy to use became permanent features of everyday work. Technological adaptation thus became a key factor in workplace adaptation.

6. The organizational practices developed during the pandemic have resulted in experiences that may also support preparedness for future crises. The results suggest that, in the case of the defense company studied, the experiences gained during COVID-19 can be interpreted as an organizational learning process. These can contribute to future crisis management if they are institutionalized and integrated into organizational operations.

Further research directions

The empirical results of the dissertation revealed a number of issues and correlations that, if further investigated, could contribute to a deeper understanding of organizational resilience and workplace adaptation, especially in the case of organizations belonging to critical infrastructure operating in crisis situations.

First, it would be justified to extend the present research in a longitudinal approach. Data collection at multiple points in time would allow for a more accurate examination of which organizational and workplace practices developed during the pandemic will remain in place and which will be scaled back after the crisis has ended. This would be particularly relevant in terms of exploring the long-term development of employee well-being and organizational resilience.

A further avenue of research could be to involve several organizations with different profiles belonging to defense and critical infrastructure. Comparative analyses between organizations would provide an opportunity to examine how organizational structure, management practices, and the institutional environment influence adaptation to crisis situations and the development of resilience.

Future research should examine in more detail the role of managerial decision-making during pandemics. It may be particularly relevant to explore how different leadership styles and communication strategies affect employee perceptions, well-being, and adaptation processes in crisis situations.

Further analysis of technological adaptation is also warranted. Future research could focus on how the acceptance of digital tools and IT solutions develops in stable periods following a crisis, and under what conditions these tools contribute to more efficient work and stronger organizational resilience in the long term.

Further studies could also aim to explore the psychological dimensions of employee well-being in greater depth. Mental health, motivation, and work-life balance are particularly sensitive areas in crisis situations, so monitoring them over the longer term could provide important scientific and practical insights.

Finally, it may be justified to further develop the integrated application of the theoretical frameworks used in this research: the Job Demands-Resources Model, Self-Determination Theory, and the Technology Acceptance Model. Empirical testing of the relationships between the models could contribute to the development of a more comprehensive organizational resilience model that is sensitive to crisis situations.

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- IDEB 2022, Bratislava. May 9, 2022 – Analysis of healthcare systems in Europe
- PTE ÁOK Institute of Public Health, from October 15, 2024 – Research assistant
- Baranya County Disaster Management Directorate and PTE ÁOK November 20, 2025 – Health promotion plan for high-risk occupations