JÓZSEF POÓR – LADISLAV MURA – ERIC J. SANDERS – SILVIA TÓBIÁS KOSÁR – BOTOND GÉZA KÁLMÁN – ZDENÊK CAHA – ERIKA SERES HUSZÁRIK – TIBOR ZSIGMOND – ERIKA VARGA – ILDIKÓ ÉVA KOVÁCS

MANAGEMENT IN THE SHADOW OF WAR – A COMPARATIVE ANALYSIS OF CZECH, HUNGARIAN AND SLOVAK ORGANIZATIONAL RESPONSES TO CRISES

MENEDZSMENT A HÁBORÚ ÁRNYÉKÁBAN – CSEH, MAGYAR ÉS SZLOVÁK SZERVEZETEK VÁLSÁGRA ADOTT VÁLASZAINAK ÖSSZEHASONLÍTÓ ELEMZÉSE

In recent years, Central and Eastern European countries have faced significant crises, including the COVID-19 pandemic and the Russian-Ukrainian conflict, which have impacted their social and economic development. This study examines how these events influenced business operations, leadership, and human resources in Czech, Hungarian, and Slovak organizations. A total of 1,370 organizations responded to the questionnaire. The research aimed to explore leadership practices during these challenges by testing five hypotheses. The results clearly demonstrate relationships between a respondent organization's country and its perceptions of crisis-driven opportunities, such as technological developments, organizational renewal, and innovative leadership approaches. Crisis strategies vary by country and organizational context. Larger organizations and foreign-owned companies are more likely to adopt innovative technological or people-centered solutions.

Keywords: **management, human resource management, war, contingency plan, crisis management, organizational change**

A közép- és kelet-európai országok a közelmúltban jelentős válságokkal néztek szembe, beleértve a COVID-19-et és az orosz-ukrán konfliktust, amelyek hatással voltak a társadalmi és gazdasági fejlődésükre. Ez a tanulmány azt vizsgálja, hogy a jelzett folyamatok hogyan hatottak az üzleti működésre, a vezetésre és a humánerőforrásokra a cseh, magyar és szlovák szervezetekben. Kérdőívet 1370 szervezet válaszolta meg. A kutatás célja, hogy feltárják a vezetési gyakorlatokat a jelzett kihívások idején, öt hipotézist tesztelve. Az eredmények egyértelmű összefüggéseket mutatnak az adott válaszadó szervezet országa és a válság által vezérelt lehetőségekről, például a technológiai fejlesztésekről, a szervezeti megújulásról és az innovatív vezetési megközelítésekről alkotott képek között. A válságstratégiák országonként és szervezeti kontextusonként eltérnek. A nagyobb szervezetek és a külföldi tulajdonban lévő vállalatok inkább alkalmaznak innovatív technológiai vagy emberközpontú megoldásokat.

Kulcsszavak: **menedzsment, humánerőforrás-menedzsment, háború, vészhelyzeti terv, válságkezelés, szervezeti változás**

Funding/Finanszírozás:
The authors did not receive any grant or institutional support in relation with the preparation of the study.
A szerzők a tanulmány elkészítésével összefüggésben nem részesültek pályázati vagy intézményi támogatásban.

Authors/Szerzők:
Prof. Dr. Poór József[a] (poor.jozsef@uni-mate.hu) DCs, CMC, professor emeritus; Dr. Ladislav Mura[b] (ladislav.mura@euba.sk) associate professor; Eric J. Sanders[c] (eric.sanders@elmhurst.edu) associate professor; Dr. Silvia Tóbiás Kosár[d] (kosars@ujs.sk) associate professor; Dr. Botond Géza Kálmán[e] (kalman.botond.geza@nje.hu) assistant professor; Dr. Zdenêk Caha[f] (caha@mail.vstecb.cz) associate professor; Dr. Erika Seres Huszárik[d] (huszarike@ujs.sk) associate professor; Dr. Tibor Zsigmond[d] (zsigmondt@ujs.sk) assistant professor; Dr. Erika Varga[a] (varga.erika@uni-mate.hu) associate professor; Dr. Ildikó Éva Kovács[a] (kovacs.ildiko@uni-mate.hu) senior researcher

[a]Hungarian University of Agriculture and Life Sciences (Magyar Agrár- és Élettudományi Egyetem) Hungary (Magyarország); [b]University of Economics in Bratislava (Pozsonyi Gazdasági Egyetem) Slovakia (Szlovákia); [c]Elmhurst University (Elmhurst Egyetem) USA (Amerikai Egyesült Államok); [d]J. Selye University (Selye János Egyetem) Slovakia (Szlovákia); [e]John von Neumann University (Neumann János Egyetem) Hungary (Magyarország); [f]Institute of Technology and Business (Technológiai és Üzleti Intézet) Czechia (Csehország)

The article was received: 24. 01. 2025, revised: 01. 08. 2025 and 29. 09. 2025, accepted: 03. 10. 2025.
A cikk beérkezett: 2025. 01. 24-én, javítva: 2025. 08. 01-én és 2025. 09. 29-én, elfogadva: 2025. 10. 03-án.

Currently, there are very few current studies on the impact of military operations on companies and the internal running of organizations at war. These publications focus more on the problems of Ukrainian companies (Koshlenko, 2024; Bondarchuk et al., 2025), and fewer such studies can be found in other countries. Based on analysis of the available literature focuses on the effects of energy, logistics, value chains and trade (Deloitte, 2022; KPMG, 2022; Markus, 2022; Ahlawat et al., 2022; Ostapenko et al., 2023; Fawn & Drobysh, 2023; Paryan & Hashfi, 2023; Ediz et al., 2025).

The publications written about the situation in Ukraine talk about the sustainability of business there, financial and financing opportunities (Bandura, Timtchenko & Hardman, 2024) and possible management solutions in war conditions (Uvarova & Saprykina, 2023). We find publications that are not only about the difficulties caused by the war, but also report on the opportunities created by new challenges (e.g. new ITC solutions, spread of business resilience, crisis plans, maintaining team spirit, etc.) (EU, 2024; Poyner, 2024).

Therefore, in June 2023, researchers from J. Selye University, in cooperation with researchers from several countries (the Czech Republic, Hungary, Romania, Slovakia, USA), launched their research “The impact of crises – COVID-19, recovery, war – on the management of companies and organizations.” The purpose of this research to find what effects the responding organizations expect from the war on their business activities, management and HR in the countries participating in the research.

Theoretical background

The economic development of various organizations (companies, institutions) was influenced by several significant changes in recent years. These changes also confirm the validity of Jared Diamond’s statement (1999, p. 26) that “We can successfully prepare for the challenges of the future if we intelligently understand everything that is possible from the past” However, we are returning to past phenomena that today’s generations of leaders have not previously experienced, such as “crises, trade wars, emerging capital flight markets, widespread social unrest, geopolitical confrontation and the specter of nuclear war” (WEF 2023, p. 6). Other historians drew attention to the fact that medieval plagues had another decisive social consequence: the large number of deaths increased the value of work, serfs and peasants were able to negotiate more favorable terms with their landlords (Romsics, 2021). These past phenomena live today in the guise of artificial intelligence, the global climate crisis, and the fifth industrial revolution (Harai, 2023; Vinkóczi et al., 2023). In the following, we analyze the significant effects of these changes from the perspective of the literature.

COVID-19 pandemic

According to Pitterle et al. (2015), crises, especially external crises, can cause an economic slowdown, which can lead to rapidly developing continuous commodity and financial market imbalances. COVID-19 is considered an external shock and crisis (UNCTAD, 2020; Vittore et al., 2021). The pandemic showed a significant impact on financial markets in the case of 49 countries (Zaremba et al., 2021).

The closure significantly reduced economic activities, many companies scaled back their operations or closed (Brodeur et al., 2020, Gourinchas, 2020).

The pandemic has brought to the fore several areas of HR that need improvement: further development of internal communication, expansion of training, and reduction of administrative burdens (Pató et al., 2021). The wider acceptance of home office has also become essential, although recent research suggests that this form of work does not always result in higher productivity (Collings et al., 2021; Kokt &Chipunza, 2022).

Employers had to retain their employees with much more complex and innovative solutions than before (e.g., well work and wellbeing (Dajnoki et al., 2023). International trade also deteriorated significantly (Naseer et al., 2023; Gelencsér et al., 2023).

In response to the social and economic changes caused by the pandemic, the governments introduced a series of measures which included compensation, and concessions were also introduced in the area of tax payment and tax arrears (Mura et al., 2022a).

Despite the fact that unemployment in the world increased from 5.7% in 2019 to 8% in 2021 as a result of the COVID-19 crisis (ILO, 2021), the countries of the developed world–including the three countries examined in our article (the Czech Republic, Hungary and Slovakia)–were also affected by a strong labor shortage. In fact, it was also established that in February 2022, the level of unemployment in these countries returned to the pre-COVID crisis level (OECD, 2022). One of the key issues of HRM in these countries today is the dramatic increase in labor shortages, which has been influenced by a variety of factors, namely outbound labor migration after the regime change, unfavorable demographic factors, the economic downturn, as well as wage differences within the EU (Morley et al., 2020; Stachova et al., 2020).

While in 2020, the year the pandemic broke out, annual inflation was relatively low (0.7%), by 2021 it reached the so-called the level of stimulating inflation (2-3 percent price increase).

The main challenge of the pandemic for the global economy is the negative impact on the implementation of the sustainable development agenda until 2030 (Elavarasan et al., 2021; Fagbemi, 2021).

The War between Russia and Ukraine

The war between Russia and Ukraine began in 2014 when Russia annexed Crimea and began supporting separatists, primarily in Eastern Ukraine. This escalated to a full-scale invasion of the country on 24 February 2022, and continues at the time of this writing in September 2025. The political and economic reasons for the war are beyond the scope of this paper. However, the war impacted firms buying and selling to both Ukraine and Russia, especially firms located in Central and Eastern Europe. Their preparation for and response to this major regional crisis is the focus of this research.

Crisis as an opportunity

During the coronavirus crisis, an opinion was often expressed that it could also be the basis for many renewals. These can be renewals and opportunities and can arise directly or indirectly (WEF, 2020; UN, 2021). An important assumption in our research was that every crisis is also an opportunity.

The novelty and complexity of COVID-19 threatened the achievement of organizational goals. According to Demirkaya and Aydın (2006), a crisis can create unexpected opportunities for organizations. Organizations must be able to prepare and allocate their resources; coordinate the necessary mechanism and use organizational resources and knowledge appropriately (Liu et al., 2020; Ton et al., 2022).

Economic situation in analyzed countries

Socio-economic situation

The economic characteristics of these countries are listed in Table 1. By comparing the three countries by economic performance, conclusions can be drawn.

- In 2023, 25.85 million people lived in the three countries under study (Eurostat, 2024b), representing 5.77% of the population of the European Union (Eurostat, 2024b).
- In the year before the outbreak of the coronavirus crisis (2019), all countries had positive economic growth (2.51% to 4.86%). The same cannot be said for 2020, when the decline ranged from -3.34% to -5.40%. In 2021, growth (3.55-7.20%) was again observed in the countries studied. The 2022 figures were lower than the year before (1.67-4.87%).
- The unemployment rate before the outbreak of the pandemic in 2019 was low in all three countries (the Czech Republic: 1.3%, Hungary: 3.5% and Slovakia: 3.8%). The unemployment rate in 2019 ranged from 1.3% to 3.8% in the 3 countries. In 2021, unemployment also rose slightly (0.1% in Slovakia, 0.2% in the Czech Republic) or stagnated (Hungary). In 2022, unemployment fell again in all three countries (by 0.3-0.4%) (Eurostat, 2024b).
- In terms of GDP per capita, the crisis has led to a decline, to varying degrees, in all the countries surveyed, but by 2021 and then 2022, all three countries surveyed had experienced an increase (World Bank, 2024).

Foreign capital investments (FDI) are an important source of the economic development of the examined countries (Götz, Éltető & Sass, 2023). As a result of the indicated foreign FDI, 15-30% of the employed in these countries worked for subsidiaries of such ownership According to KSH (2020) investigations, in 2020, 25.2% of those employed in the corporate sector worked for foreign-owned companies in Hungary. According to studies by Palócz (2019), in the Czech Republic and Slovakia, the proportion of domestic employees in non-financial foreign-owned enterprises was 28 percent.

Table 1
Economic characteristics of the examined countries

Characteristics		CZ	HU	SK	Total/ average
Population (million people)	2019	10.65	9.77	5.45	25.87
	2020	10.70	9.77	5.46	25.93
	2021	10.49	9.73	5.46	25.68
	2022	10.52	9.69	5.43	25.64
	2023	10.83	9.60	5.43	25.86
GDP growth (%)	2019	3.03%	4.86	2.51%	3.47%
	2020	- 5.50%	- 4.54%	- 3.34%	- 4.46%
	2021	3.55%	7.20%	4.86%	5.20%
	2022	2.46%	4.58%	1.67%	2.9%
Unemployment (%)	2019	1.3%	2.1%	3.8%	2.40%
	2020	1.7%	2.7%	4.4%	2.93%
	2021	1.9%	2.7%	4.5%	3.03%
	2022	1.5%	2.4%	4.1%	2.67%
GDP per capita (euro/person)	2019	44 212.7	34 645.6	33 453.8	37 437. 37
	2020	42 827.1	34 169.9	32 922.9	36 639. 97
	2021	45 630.0	36 735.9	34 505.3	38 957.07
	2022	49 195.0	41 740.9	37 457.2	42 797.7

Source: authors' own editing based on Eurostat (2024b), World Bank (2024)

Empirical Research

Objective

The aim of the research "Factors endangering corporate-organizational stability, or the running, management and HR in the shadow of war" was to create a picture of the situation: after the recovery from the coronavirus crisis of the past two years.

Hypotheses

When formulating our hypotheses, we paid special attention to the influencing factors of the given countries and the organizations involved, the crisis management options, and the crisis as a recovery solution (Creswell & Creswell, 2018). In connection with our research, we formulated the following five hypotheses:

Many studies (Pearson et al., 1998; Mitroff & Alpaslan, 2003; Bundy et al., 2017) have examined crisis management and the effective measures that organizations should implement in critical situations. A study by Gurkov & Dhams (2024) assessed the organizational communication strategies of foreign enterprises, working in Russia after the start of the war (24th of February, 2022). They assessed foreign companies from USA, UK, Canada, Australia, Japan, Germany and EU, etc., but did not examine, whether the origin (nationality) of these subsidies influence their attitude. Dai et al. (2017) studied 1.162 multinational enterprises subsidiaries across 20 war-affected countries and found that enterprises perceived the threat of war quite similarly. At the same time, differences were found regarding the responses of the subsidiaries. Hofstede (2001) introduced five dimensions (power distance, uncertainty avoidance, individualism versus collectivism, masculinity versus femininity, and long term versus short-term orientation) in his seminal work in cross-cultural psychology and management, based on how national cultures differ from one another. A sixth dimension (indulgence versus restraint) was added in 2010 (Hofstede et al., 2010). Given these differences, Kostova & Roth (2002, p. 215) noted that "*organizational practices can be expected to vary across countries*".

Based on the above a research gap was found, as no previous study was found to focus on the differences between companies of different nationalities (especially between Czechia, Hungary, and Slovakia) in context of response to war situations.

> *H1 This perception of the overall impact of the war impact as an opportunity or a constraint for positive organizational change is associated with national context.*

> *H2: Organizations' preferences for specific crisis management measures differ significantly across countries.*

Several studies state that developing new business models becomes sustainable through taking and exploiting new risks.

A study by Wenzel et al. (2021) discusses how crises stimulate technological and organizational innovation.

A paper by Teece et al. (2016) provides a framework for understanding innovation in crisis contexts.

Fedynets (2023) highlights that changes within an organization are inevitable. Changes caused by crisis conditions in business operations must be implemented as soon as possible.

> *H3: Organizations that perceive the war situation as an opportunity for positive organizational change are more likely to adopt innovative crisis management measures.*

According to Meyer & Peng (2016) organizational context influences perception of crises as threats or opportunities.

Child (1972) introduced the idea of strategic choice and how context shapes organizational responses.

Lengnick-Hall et al. (2011) discovered that organizational context is a determinant of crisis perception and response. Williams et al. (2017) also highlighted the importance of internal organizational contexts, as they shape whether crises are threats or opportunities for a given organization.

Manisaligil et al. (2023) discovered that organizations change similarly in the short term but differently in the long term.

> *H4: Whether organizations perceive the war situation as an opportunity or as a compulsion to implement positive organizational changes is influenced by their organizational context.*

Based on the study by Doern (2016), the crisis management strategies of SMEs fundamentally differ from those of large corporations: they are characterized by a lack of prior planning, a reactive approach, personal intervention, and a strong reliance on external support. In contrast, larger firms tend to be more proactive, system-oriented, and capable of implementing more innovative solutions.

According to Archibugi et al. (2013) larger and resource-rich firms are more likely to respond with innovation, while smaller firms tend to scale back such activities during times of crisis. Smallbone et al. (2012) also found that firm size matters in shaping strategic responses to economic downturns.

> *H5: Crisis responses differ by firm size and ownership, with larger and foreign-owned firms preferring innovative solutions.*

The main outcome variables are the perceived impacts of the war on organizations, opportunities for positive change, and adopted crisis measures. Independent variables include country, company size, and ownership structure, with these clearly distinguished to clarify the model

Questionnaire

The questionnaire used in the survey addresses the following major groups of questions, for each of them collecting the respondent's experiences, opinions and expectations:

- the general characteristics of the respondent organization, its relationship with the Russian and Ukrainian markets, and its preparedness for war,
- the likely macro and micro economic and financial impact of the Russia-Ukraine war,
- the impact of the Russia-Ukraine war on your organization/business in 2022-2023,
- whether the war or post-war situation also represents an opportunity for the responding organization,
- analyzing the ways in which the organization is trying to adapt to the situation created by the war situation,
- the range of measures that are being planned or implemented to mitigate the negative effects of the Russia-Ukraine war,
- identification of materials, foodstuffs, spare parts and services which are scarce or difficult to obtain because of the war,
- characteristics of the respondent,
- other recommendations and comments.

To ensure the reliability and validity of the questionnaire, the authors designed the constructs and the items through a comprehensive literature search. We drew on numerous previous research studies. First, the Cranet nonprofit research network provided scientific facts about the contextual nature of HRM (Brewster et al., 2018). Another important source for our questionnaire was the one developed by Central European international human resource management researchers to analyze HR changes in the CEE region (Zaharie et al., 2019). Third, we used the experiences of labor market research conducted in the V4 countries (Horbulák, 2022). A pilot study was conducted with a select group of organizations, which helped to gauge the clarity and coherence of the instrument.

Sample

In the examined sample across all three nations, the largest proportion was represented by the domestic private sector with 51.9%, however, in the Slovak sample their proportion is much higher, more than 2/3 of the respondents (71.5%) came from the domestic private sector. At the same time, the proportion of companies with foreign or mixed ownership was lower (17%), compared to 34.2% of the Czech sample and 28.9% of the Hungarian sample (Table 2).

Table 2

Distribution of the sample by country and by owner (%)

Ownership	CZ	HU	SK	Total
Government, local government	11.2%	19.2%	9.1%	16.3%
Domestic private	53.6%	47.8%	71.5%	51.9%
Foreign or mixed private	34.2%	28.9%	17.0%	28.6%
Nonprofit organizations	1.0%	3.4%	1.2%	2.6%
Other	0.0%	0.7%	1.2%	.6%
Total (100%) n=	295	910	165	1370

Source: authors' own research

In terms of organizational headcount/number of employees, 2/3 of the entire sample consisted of organizations employing less than 250 people, but their proportion in the Slovak sample is much higher, 89.7%. In the Czech and Hungarian samples, their proportion is similar, 60% and 62.3%, respectively.

Statistical analysis

Internal validity integrity and result precision were assessed after applying non-parametric tests relevant to categorical data's attributes. In conformity with standard practices for result presentation, the frequency analysis began with a frequency investigation and descriptive statistics related to the major variables, followed by non-parametric tests for correlation and contrasting group differences as appropriate. Due to the wide variety of the variables, as well as the categorical and ordinal nature of the data, a structured approach to presentation was taken, which paralleled the research questions and hypotheses, consequently streamlining the ordering of frequency and comparative work.

Differences found between different groups were examined by applying chi-square tests, and changes that extended beyond several groups were tested by applying Kruskal-Wallis tests. To improve clarity, the results are now presented in two stages: first, country-specific findings are outlined in separate subsections; second, comparative insights across countries are summarized, focusing on the hypotheses tested. Mann-Whitney U tests were also used to appropriately examine distributions for comparison purposes. Results included measures of significance, effect size (Cramer's V), and association measures (ETA).

Although the Kruskal-Wallis, Chi-square, and Mann-Whitney U tests were used to investigate differences between/among groups, it is known that the use of a multivariate method like MANOVA could have provided additional information when investigating several dependent variables simultaneously across various nations. However, due to the ordinal nature of the Likert-scale data, the lack of multivariate normality, and the mixture of categorical and ordinal variables, the requirements for MANOVA were not fully met. Thus, the non-parametric tests were chosen as appropriate substitutes.

H1: The perception of the overall impact of the war's impact as an opportunity or a constraint for positive organizational change is associated with national context.

Country-specific results

Czech Republic

In assessing the effects of the war, the greatest agreement among the surveyed organizations was that the consequences of the coronavirus situation are still a bigger problem than the Russian-Ukrainian war. In this regard, there is no significant difference between the countries based on the Chi-square test (Sig=0.127), for more than a quarter of the respondents this is still a problem.

The most problematic area was indicated by the respondents in all three countries as the increase in purchase prices (60% of the respondents), with the highest proportion in Slovakia (67.3%). Overall, this is followed by the change in the exchange rate of the domestic currency, which is a problem for Hungarian organizations in a much higher proportion than for the Czech and Slovak ones (59.5% vs. 34.9% and 39.6%, respectively), and also the relationship between the variables here is the strongest. In four cases, the test shows no correlation between the impact of the war and belonging to the country:

- threat to the stability of our work/service processes (Sig=0.858),
- lack of planned/started technological and IT development (Sig=0.479),
- general labor shortage due to the war (Sig=0.361),
- lack of qualified professionals due to the war (Sig=0.236) (Table 3).

Table 3

The impact of the Russian-Ukrainian war on the organization by country – the total percentage of more typical and fully typical answers to the questions (%)

	The impact of the Russian-Ukrainian war on organization/enterprise	CZ	HU	SK	Total	Chi-square Sig	Cramer'sV
1	Increase in purchase prices due to the war	62.7%	58.9%	67.3%	60.7%	0.000	0.130
2	The negative effect of the change in the exchange rate of the domestic currency	34.9%	59.5%	39.6%	51.8%	0.000	0.200
3	Threat due to supply (lack) of energy sources	38.3%	32.0%	43.6%	34.8%	0.000	0.133
4	The stability and performance of our suppliers has changed due to the war	31.0%	31.9%	35.8%	32.2%	0.000	0.118
5	There is a shortage of raw materials and spare parts on our foreign market due to the war	33.2%	24.1%	36.0%	27.5%	0.000	0.156
6	The consequences of the coronavirus situation are still a bigger problem for us than the Russian-Ukrainian war	30.6%	26.7%	24.2%	27.2%	0.127	0.075
7	There is a shortage of raw materials and spare parts on our domestic market due to the war	30.3%	25.1%	32.7%	27.1%	0.000	0.114
8	Threat to the stability of our work/service processes	15.3%	23.9%	29.1%	22.7%	0.000	0.115
9	Lack of planned/started technological and IT development	15.9%	23.6%	20.7%	21.6%	0.008	0.094
10	Difficulties arising from the employment of refugee workers	23.4%	17.9%	26.1%	20.1%	0.000	0.140
11	General labor shortage due to the war	15.0%	17.2%	15.2%	16.5%	0.008	0.094
12	Lack of qualified specialists due to the war	11.2%	17.5%	15.2%	15.8%	0.000	0.117
13	Benefits of employing refugee workers	21.6%	11.8%	15.2%	14.3%	0.000	0.152

Source: authors' owns research

Note: all percentages displayed are of 'typical' or 'fully typical' respondents, and averages are based on a scale of Likert that varies from 1 (no agreement at all) to 7 (complete agreement). All percentages and mean calculations are strictly based on valid answers

Hungary

While those who gave a neutral answer were around 30% in all three countries, the Slovaks are by far the most pessimistic in terms of whether the war situation creates an opportunity for or forces positive changes in the organization. Overall, only 14% see some possibility of this, while more than a quarter (27.4%) of the most optimistic Hungarian respondents. The Chi-square test (Sig=0.001) and the Kruskal-Wallis test (Sig=0.000) shows a correlation between belonging to the country and the perception of positive opportunities. After presenting these country-specific results, the following sections summarize the comparative insights across the Czech Republic, Hungary, and Slovakia, focusing directly on the hypotheses tested (Table 4).

Slovakia

Overall, based on the above, Hypothesis 1 can be considered partially approved.

> *H2. Organizations' preferences for specific crisis management measures differ significantly across countries.*

Almost half of the responding organizations in all three countries attach great importance to the following:

Table 4

To what extent does the war situation represent an opportunity for organizations – % distribution of responses by country

The war or post-war situation also represents an opportunity for your organization / forces your organization to make positive changes	CZ	HU	SK	Total	Chi-square Sig	Cramer'sV
Do not agree at all	19.0%	18.1%	28.7%	19.6%		
Mostly do not agree	13.9%	11.2%	12.8%	12.0%		
Rather disagree	19.7%	14.8%	15.2%	15.9%		
Neither agree nor disagree (neutral)	30.2%	28.5%	29.3%	29.0%	0.001	0.111
Rather agree	12.5%	16.2%	9.1%	14.6%		
Mostly agree	3.4%	6.4%	2.4%	5.3%		
Completely agree	1.4%	4.8%	2.4%	3.8%		
Average of responses	3.19	3.52	2.95	3.38		

Source: uthors' owns research

- increasing organizational efficiency (53-56%),
- general cost reduction (48-53%),
- measures to help retain key people and talents (47-50%),
- more attention to innovation opportunities (45-48%),
- strengthening internal communication (43-47%).

Examining the applied crisis management measures by country, we find a significant difference between the countries in all cases based on the Chi-square test, and in 11 cases based on the Kruskal-Wallis test. The strongest differences are
- search for new procurement alternatives,
- rescheduling or postponing investments,
- revision of strategy,
- starting and strengthening training programs,
- stronger/renewed marketing activity.

Searching for new procurement alternatives is preferred by half of the Czech companies/organizations (50.0%), 41.5% of Slovaks, while only nearly a third of Hungarians (30.3%), but a much higher proportion of Slovaks think about revising the Strategy (44.4%) and Hungarian (38.4%) organizations, as well as the Czech (24.1). The Czechs and the Hungarians follow the rescheduling or postponement of investments in almost the same proportion (33% and 31.6%), while this is much more important for the Slovaks (43.6%). Stronger/renewed marketing activity is also more typical for the Slovaks (42.3%) than for the Hungarians (33.9%) and the Czechs (35.3%). Starting and strengthening training programs is the most important for Hungarian companies (36.1%), ahead of Czech (32.4%) and Slovak (25.8%) ones (Table 5).

Based on the results, Hypothesis 2 is considered proven.

H3: Organizations that perceive the war situation as an opportunity for positive organizational change are more likely to adopt innovative crisis management measures.

In the case of almost all crisis management measures, the average of the responses of this group is above the neutral value of 3, and in many cases approaches the value of 4, i.e., the measures are typically applied. There is a significant correlation between the variables for all crisis management measures, this is the strongest for the following measures in order:

Table 5

Measures taken to mitigate the effects of war by country – aggregated percentage of more typical and fully typical responses to the questions (%)

	In what ways is your organization trying to adapt to the war situation? Proportion of typical responses	CZ	HU	SK	Total	Chi-square Sig	Kruskal-Wallis Sig	Cramer's V
1	Nothing needs to be done	30.3%	25.1%	20.0%	25.6%	0.000	0.000	0.119
2	Seeking new procurement alternatives	50.0%	30.3%	41.5%	35.9%	0.000	0.000	0.155
3	Strengthening supplier network	48.1%	40.6%	44.4%	42.7%	0.000	0.002	0.111
4	Domestic commodities, ensuring self-sufficiency	32.5%	34.9%	35.4%	34.4%	0.000	0.079	0.119
5	Maintaining export registration	24.4%	24.6%	17.7%	23.7%	0.000	0.001	0.110
6	Entering new markets	35.7%	34.3%	26.8%	33.7%	0.000	0.038	0.121
7	Increasing organizational efficiency	54.1%	52.9%	56.4%	53.6%	0.003	0.101	0.099
8	Restructuring the supply chain	30.4%	30.0%	32.9%	30.4%	0.000	0.002	0.129
9	Increasing automation, introducing new technologies	35.6%	34.4%	28.8%	34.0%	0.003	0.101	0.099
10	Using more flexible contracts	35.3%	35.1%	35.4%	35.1%	0.004	0.452	0.097
11	Improving cybersecurity	42.6%	38.4%	37.2%	39.1%	0.008	0.020	0.094
12	Increasing mental support for employees while facing uncertainty	38.0%	37.7%	36.8%	37.7%	0.000	0.103	0.116
13	Revising strategy	24.1%	38.4%	44.4%	36.1%	0.000	0.000	0.137
14	Stronger/renewed marketing activities	35.3%	33.9%	42.3%	35.2%	0.000	0.019	0.133
15	More focus on innovation opportunities	45.2%	47.8%	46.9%	47.1%	0.001	0.643	0.103
16	Rescheduling or postponing investments	33.0%	31.6%	43.6%	33.3%	0.000	0.000	0.151
17	Using business consultants to solve organizational/operational problems that have arisen	20.9%	19.8%	15.4%	19.5%	0.001	0.083	0.105
18	Developing, strengthening and professionalizing HR functions	29.6%	33.6%	25.8%	31.8%	0.000	0.139	0.113
19	Retaining key people and talent	47.1%	49.4%	50.3%	49.0%	0.000	0.782	0.123
20	Launching complex knowledge management programmed	26.4%	28.7%	19.3%	27.0%	0.000	0.181	0.114
21	Rethinking employment conditions	31.1%	33.9%	32.9%	33.2%	0.000	0.175	0.128
22	Launching and strengthening training programmed	32.4%	36.1%	25.8%	34.1%	0.000	0.015	0.134
23	Reducing overall costs	53.1%	48.1%	49.4%	49.3%	0.002	0.126	0.102
24	Strengthening internal communication	46.9%	46.4%	43.2%	46.1%	0.000	0.483	0.125

Source: authors' owns research

- revision of strategy,
- developing, strengthening and increasing the professionalism of HR functions,
- stronger automation, introduction of new technologies,
- increasing organizational efficiency,
- entry into new markets,
- improving cybersecurity,
- more attention to innovation opportunities.

This shows that organizations that see opportunities in the situation prefer innovative measures related to technology or the renewal of the organization more than the others.

Although there are significant differences between the three groups, in the case of the following measures, the average of all three groups is above 3, so their application typically occurs equally in all three groups:

- increasing organizational efficiency,
- general cost reduction,
- measures to help retain key people and talents,
- strengthening internal communication,
- more attention to innovation opportunities (Table 6).

Overall, hypothesis 3 is considered proven.

H4: Whether organizations perceive the war situation as an opportunity or as a compulsion to implement positive organizational changes is influenced by their organizational context.

More than a third of the large companies (35%) declared that they see an opportunity to implement positive organizational changes in the war and its aftermath, while only 1/5 of the SMEs (19.4%) did so. We see the same in the

Table 6

Measures taken to mitigate the effects of war depending on the assessment of the possibilities – average of the answers to the questions

What measures are planned to mitigate the negative effects of the Russian-Ukrainian war It does not represent an opportunity		The situation of war or its aftermath is also an opportunity for your organization/ forces your organization to implement positive changes				Chi-square Sig	Kruskal-Wallis Sig	Cramer's V	Eta
		Neutral	Values it as an opportunity	Total					
1	Nothing needs to be done	2.82	2.80	2.51	2.74	0.000	0.002	0.112	0.101
2	Seeking new procurement alternatives	2.75	2.95	3.24	2.93	0.000	0.000	0.141	0.151
3	Strengthening supplier network	2.92	3.17	3.42	3.11	0.000	0.000	0.131	0.153
4	Domestic commodities, ensuring self-sufficiency	2.78	3.07	3.18	2.96	0.001	0.000	0.107	0.133
5	Maintaining export registration	2.40	2.76	2.90	2.63	0.000	0.000	0.131	0.168
6	Entering new markets	2.57	3.01	3.33	2.88	0.000	0.000	0.177	0.231
7	Increasing organizational efficiency	3.25	3.54	3.93	3.50	0.000	0.000	0.179	0.229
8	Restructuring the supply chain	2.59	2.86	3.19	2.81	0.000	0.000	0.160	0.188
9	Increasing automation, introducing new technologies	2.57	2.97	3.41	2.89	0.000	0.000	0.181	0.250
10	Using more flexible contracts	2.80	3.02	3.35	2.99	0.000	0.000	0.150	0.172
11	Improving cybersecurity	2.80	3.19	3.64	3.12	0.000	0.000	0.176	0.240
12	Increasing mental support for employees while facing uncertainty	2.83	3.15	3.49	3.08	0.000	0.000	0.161	0.201
13	Revising strategy	2.70	3.11	3.49	3.01	0.000	0.000	0.189	0.252
14	Stronger/renewed marketing activities	2.77	3.12	3.26	2.99	0.000	0.000	0.143	0.168
15	More focus on innovation opportunities	3.00	3.43	3.66	3.28	0.000	0.000	0.172	0.228
16	Rescheduling or postponing investments	2.83	3.02	3.05	2.93	0.001	0.030	0.107	0.081
17	Using business consultants to solve organizational/operational problems that have arisen	2.21	2.71	2.67	2.47	0.000	0.000	0.159	0.194
18	Developing, strengthening and professionalizing HR functions	2.52	2.98	3.30	2.84	0.000	0.000	0.187	0.250
19	Retaining key people and talent	3.11	3.36	3.67	3.32	0.000	0.000	0.132	0.172
20	Launching complex knowledge management programmed	2.45	2.87	3.09	2.72	0.000	0.000	0.168	0.208
21	Rethinking employment conditions	2.69	2.90	3.26	2.88	0.000	0.000	0.135	0.180
22	Launching and strengthening training programmed	2.63	2.92	3.31	2.88	0.000	0.000	0.160	0.209
23	Reducing overall costs	3.27	3.48	3.61	3.41	0.001	0.002	0.104	0.111
24	Strengthening internal communication	3.05	3.36	3.64	3.28	0.000	0.000	0.147	0.185

Source: authors' owns research

case of domestic private companies and foreign-owned companies: 20.5% of domestic private companies and 31.1% of foreign-owned companies take a similar position. Based on the averages, it can be seen that they are always below the neutral value of 4, so they point in the direction of disagreement. The responses of foreign-owned SMEs and domestic companies are somewhat more homogeneous than the large ones. In both cases, there is a significant weak relationship between the variables (Chi-square sig=0.000, Cramer's V=0.193 and 0.169), so the attitude to the situation also depends on the size of the company and the ownership conditions (Table 7).

- domestic commodity funds, ensuring self-sufficiency (averages: 2.99 and 2.95),
- stronger/renewed marketing activity (averages: 3.03 and 3.12),
- rescheduling or postponing investments (averages: 2.87 and 3.01),
- general cost reduction (averages: 3.41 and 3.45),
- strengthening internal communication (averages: 3.27 and 3.46).

The strongest correlation can be seen with the following measures:

Table 7

To what extent is the war situation an opportunity for organizations – % distribution of responses by company size and owner

The situation of war or its aftermath is also an opportunity for your organization / forces your organization to implement positive changes	SME	Big firms	Domestic private	Foreign or mix	Total
Do not agree at all (1)	21.5%	11.8%	21.8%	12.3%	18,4%
Mostly do not agree (2)	14.0%	9.8%	12.7%	12.6%	12,7%
Rather disagree (3)	16.6%	16.2%	16.0%	17.2%	16,4%
Neither agree nor disagree (neutral) (4)	28.6%	27.2%	28.9%	26.7%	28,1%
Rather agree (5)	12.6%	21.7%	13.9%	18.3%	15,4%
Mostly agree (6)	4.5%	7.5%	4.8%	6.7%	5,5%
Completely agree (7)	2.3%	5.8%	1.8%	6.2%	3,4%
Average of responses	3.19	3.83	3.22	3.71	3,39
Standard deviation	1.589	1.624	1.590	1.647	1,626
Chi-square test Sig.	0.000		0.000		
Cramer's V	0.193		0.169		

Source: authors' owns research

Conclusion: The size of the organization (number of employees) and ownership structure are an important part of the organizational context (Robbins, 2023), so *hypothesis H4 was accepted.*

H5: Crisis responses differ by firm size and ownership, with larger and foreign-owned firms preferring innovative solutions.

Overall, the most preferred measures in both groups of companies (with typical responses of around 50%) are:

- increasing organizational efficiency,
- general cost reduction,
- measures to help retain key people and talents,
- strengthening internal communication,
- more attention to innovation opportunities.

The Chi-square test shows a significant correlation between the individual measures and the two company groups in all cases, with one exception. An exception is the measures promoting the retention of key people and talents – this is judged very similarly in both groups of companies (average of responses: 3.35 and 3.42). In addition, the Mann-Whitney test found no significant correlation in six other cases, which are almost equally typical in both groups of companies:

- search for new procurement alternatives (averages: 2.89 and 3.03),

- improving cybersecurity (Cramer's V=0.242),
- stronger automation, introduction of new technologies (Cramer's V=0.226),
- maintaining export registration (Cramer's V=0.224),
- developing, strengthening and increasing the professionalism of HR functions (Cramer's V=0.195),
- starting complex knowledge management programs (Cramer's V=0.192).

For each of the above measures, the averages of foreign-owned companies are above the neutral value of 3, while the averages of domestic private companies are below this, so their application is much more typical for foreigners.

The difference is that, apart from the measures promoting the retention of key people and talents (average of answers: 3.33 and 3.48), the Chi-square test does not show a significant relationship for two other measures. These are General cost reduction (average: 3.42 in both cases) and strengthening of internal communication (average: 3.28 and 3.45). The Mann-Whitney test does not indicate a significant correlation in three other cases:

- domestic commodity funds, ensuring self-sufficiency (averages: 2.97 and 3.00),
- stronger/renewed marketing activity (averages: 3.02 and 3.15),

- rescheduling or postponing investments (averages: 2.90 and 2.96).

The measures listed above are therefore almost equally typical for both SMEs and large companies, but in the case of the search for new procurement alternatives, both tests now show a significant relationship.

The strongest correlation can still be seen with the following measures:

- improving cybersecurity (Cramer's V=0.255),
- stronger automation, introduction of new technologies (Cramer's V=0.213),
- maintaining export registration (Cramer's V=0.186),
- developing, strengthening and increasing the professionalism of HR functions (Cramer's V=0.241),
- starting complex knowledge management programs (Cramer's V=0.224).

For each of the above measures, the averages of large companies are above the neutral value of 3, while the averages of SMEs are below this, so their application is much more typical for large companies. In the case of export registration, the difference between the two groups of companies examined is smaller (so the relationship is weaker), while the difference is more significant in the case of the development of HR functions and complex knowledge management (so the relationship is also stronger).

It is also worth highlighting that regardless of the differences between the categories, the most homogeneous answers in both breakdowns, i.e., the greatest agreement among the respondents within the examined company categories, were in the following cases (based on the standard deviation measures):

- increasing organizational efficiency,
- more attention to innovation opportunities,
- use of business consultants in order to solve organizational/operational problems,
- stronger/renewed marketing activity,
- general cost reduction (Table 8).

Based on all this, the fifth hypothesis is accepted.

Discussion

This study confirms that organizations in the Czech Republic, Hungary, and Slovakia have faced a varied range of issues that are diverse and interlinked, both from the COVID-19 outbreak and the Russia–Ukraine

Table 8

Averages of the measures taken to mitigate the effects of war, broken down by SMEs and large companies

	What measures are planned to mitigate the negative effects of the Russian-Ukrainian war	SMEs	Big firms	Total	Chi-square Sig	Mann-Whitney Sig	Cramer's V
1	Nothing needs to be done	2.83	2.58	2.75	0.052	0.007	0.100
2	Seeking new procurement alternatives	2.88	3.08	2.94	0.002	0.037	0.132
3	Strengthening supplier network	3.08	3.34	3.16	0.009	0.005	0.119
4	Domestic commodities, ensuring self-sufficiency	2.97	3.00	2.98	0.009	0.851	0.119
5	Maintaining export registration	2.48	3.02	2.65	0.000	0.000	0.186
6	Entering new markets	2.86	3.13	2.94	0.004	0.005	0.127
7	Increasing organizational efficiency	3.46	3.70	3.53	0.036	0.004	0.105
8	Restructuring the supply chain	2.75	3.09	2.85	0.001	0.000	0.139
9	Increasing automation, introducing new technologies	2.71	3.33	2.90	0.000	0.000	0.213
10	Using more flexible contracts	2.93	3.20	3.01	0.005	0.003	0.125
11	Improving cybersecurity	2.84	3.59	3.07	0.000	0.000	0.255
12	Increasing mental support for employees while facing uncertainty	2.96	3.32	3.07	0.001	0.000	0.136
13	Revising strategy	2.93	3.21	3.01	0.001	0.002	0.138
14	Stronger/renewed marketing activities	3.02	3.15	3.06	0.014	0.207	0.115
15	More focus on innovation opportunities	3.21	3.52	3.31	0.001	0.000	0.137
16	Rescheduling or postponing investments	2.90	2.96	2.92	0.007	0.496	0.122
17	Using business consultants to solve organizational/ operational problems that have arisen	2.37	2.71	2.47	0.000	0.000	0.191
18	Developing, strengthening and professionalizing HR functions	2.63	3.33	2.86	0.000	0.000	0.241
19	Retaining key people and talent	3.33	3.48	3.38	0.151	0.167	0.086
20	Launching complex knowledge management programmed	2.52	3.14	2.71	0.000	0.000	0.224
21	Rethinking employment conditions	2.83	3.05	2.90	0.005	0.013	0.125
22	Launching and strengthening training programmed	2.69	3.24	2.86	0.000	0.000	0.193
23	Reducing overall costs	3.42	3.42	3.42	0.276	0.703	0.076
24	Strengthening internal communication	3.28	3.45	3.33	0.058	0.069	0.099

Source: authors' owns research

conflict. Empirical evidence shows that perceptions of the effects of the crisis and the use of crisis management policies vary considerably between countries, firm size, and ownership. The findings lend limited support to contingency theory by highlighting the fact that the organizational environment and national context shape the way firms view crises as threats or opportunities for innovation. The study further shows that large-scale companies and foreign-owned firms are more likely to adopt innovative, technology-based solutions, while small and medium-sized firms and locally owned businesses often tend to adopt cost-cutting strategies and process adjustments. The trends are consistent with prior research while also presenting new insights into the web of relations between proximate geopolitical circumstances and post-pandemic recovery strategies in Central and Eastern Europe. The data further unveil that many organizations remain cautious; however, there is also growing evidence of the need for adaptability, knowledge management, and employees' well-being. As such, the prevailing climate calls for managers to deploy flexible strategies able to balance efficiency with resilience.

This research immensely contributes to the current literature in crisis and human resource management in three key dimensions. Firstly, it provides empirical evidence to how a compound crisis situation–namely, pandemic recovery and an imminent conflict–manifests in the organizational actions observed across Central and Eastern Europe, a geographical region that has heretofore not been studied in-depth in this regard. Secondly, it contributes to the development of contingency theory by illuminating the interplay between firm size, ownership structure, and country context in influencing crisis perceptions and response strategies. Finally, the paper offers practitioner- and policymaker-focused recommendations by highlighting the need for context-sensitive crisis planning, adaptive HR practices, and collective knowledge sharing to foster resilience in the face of persistent uncertainty.

Conclusion

This research examined the impact of crises including the COVID pandemic and the Russo-Ukrainian war on organizational practices in the Czech Republic, Hungary, and Slovakia.

The central hypotheses of the study were largely supported by empirical data and were consistent with the reviewed literature. For example, Hypothesis 1 stated that the national context influences whether the crisis is perceived as an opportunity or a constraint (Hofstede,2001; Kostova & Roth,2002). Hungarian organizations were significantly more optimistic than Slovak ones – a clear indication of the contextual embeddedness of crisis interpretation (Osiyevskyy & Dewald, 2015; Wenzel et al., 2021). Organizations that viewed war as a potential catalyst for change were more likely to implement innovative measures, confirming Hypothesis 3 (Demirkaya & Aydın,2006; Liu et al., 2020).

Hypothesis 2 posits that crisis management preferences differ across countries. Our findings support this, consistent with Meyer and Peng's (2016) institutional theory and contingency theory (Child, 1972; Williams et al., 2017). Hypothesis 4 examined the role of organizational context. A significant proportion of larger and foreign-owned companies viewed war as a springboard for positive organizational change, confirming the findings of Archibugi et & al. (2013) and Estrin et al. (2008), as well as Doern's (2016) observations. Hypothesis 5 was also confirmed: foreign-owned and large companies tend to adopt more innovative and technology-driven solutions (Fedynets, 2023; Teece et al., 2016). Our findings support the crisis-focused literature from post-COVID and war contexts (e.g. Dajnoki et al., 2023; Ngoc Su et al., 2021), which notes that organizations need to rethink work structures, employee well-being, and digital strategies. This is particularly relevant in light of increasing volatility in energy markets (Ata et al., 2025), disrupted supply chains (Ngoc et al., 2022), and long-term threats to sustainable development (Elavarasan et al., 2021). The results point to a common challenge: the need to flexibly manage uncertainty and the importance of contingency planning (AM et al., 2020; Fagbemi, 2021). Large and foreign-owned companies saw the crisis as an investment (Hamouche, 2020) and an opportunity to introduce digital innovations. This reinforces the argument that some organizations not only survive the crisis but also actively transform themselves to thrive in its aftermath.

In practice, the study emphasizes that leaders and policymakers need to employ nuanced, context-specific crisis strategies. Post-COVID HRM and management research should increasingly focus on developing organizational agility, promoting resilience, and supporting employees during prolonged uncertainty.

In conclusion, this study contributes to the management and HR literature by presenting empirically sound knowledge from a region that is underrepresented in wartime organizational research. The study fills a gap in the management and human resource literature by closely examining organizational responses in an environment experiencing both post-pandemic recovery and geopolitical upheaval, and provides insightful observations that can enrich regional policymaking alongside global crisis management policies.

Limitations and Future Directions

In our most recent research, we searched for answers and examples of actions taken by the responding organizations in the complex and difficult situation of the three indicated countries. We will continue to investigate and research these complex topics from the HR and management perspective as we have done so far) in the future as well. It is acknowledged that the use of convenience sampling within this study limits the ability to generalize findings. Future research should build upon this work by employing representative methods of sampling and possibly involving longitudinal approaches to examine temporal stability of associations. Also, more multivariate techniques are needed to separate the effect of potential confounders.

Furthermore, it is important to recognize the need for a more specific determination of these limitations. A longitudinal design is proposed to examine the development of organizational responses as the conflict continues or de-escalates. Cross-national comparisons beyond Central Europe would be helpful in determining the generalizability of these noted patterns. Finally, the use of more advanced multivariate statistical techniques could allow for the control of confounding factors like industry type, ownership structure, and company size, while impact studies could examine the effects of specific crisis management strategies on organizational resilience and performance in a practical setting.

References

Ahlawat, R., Ghai, M. & Garg, S.K. (2022). Bibliometric Analysis of Published Research on Russia-Ukraine War Using VOS-viewer. *Economic Affairs*, *67*(4), 997-1002. https://doi.org/10.46852/0424-2513.4s.2022.33

Andersen, T.A. (2023). *How are European SMEs impacted by the Russian Invasion of Ukraine?* European Commission SME Envoy Network. https://single-market-economy.ec.europa.eu/system/files/2022-09/SME%20Envoy%20report%20Economic%20Effects%20of%20the%20Russian%20Invasion%20of%20Ukraine%20Fin.pdf

Archibugi, D., Filippetti, A., & Frenz, M. (2013). Economic crisis and innovation: Is destruction prevailing over accumulation? *Research Policy*, *42*(2), 303-314. https://doi.org/10.1016/j.respol.2012.07.002

Ata, B., Pénzes, J., Pakrooh, P., Lotfata, A. & Mohammed, S. (2025). Comprehensive analysis of factors influencing EU-countries household energy consumption (2000–2022): Trends and vulnerability to COVID-19 and the Russia-Ukraine war. *Energy Strategy Reviews*, *59,* 101728. https://doi.org/10.1016/j.esr.2025.101728

Bandura, R., Timtchenko, I., &Hardman, A. (2024). *Supporting Ukraine's Private Sector during Wartime.* https://www.csis.org/analysis/supporting-ukraines-private-sector-during-wartime.

Berman, N. (2024). *Two Years of War in Ukraine: Are Sanctions Against Russia Making a Difference?* Council on Foreign Relations. https://www.cfr.org/in-brief/two-years-war-ukraine-are-sanctions-against-russia-making-difference

Biernacki, P., & Waldorf, D. (1981). Snowball sampling. *Sociological Methods & Research*, *10*(2), 141-163. https://doi.org/10.1177/004912418101000205

Bondarchuk, O., Briukhovetska,O., Kliesman, O., & Tiahur,L. (2025). Adaptation and Validation of the Psychological Safety Scale in the Ukrainian IT Sector. *Організаційна психологія Економічна психологія*, *35*(2), 45-59. https://doi.org/10.31108/2.2025.2.35.4

Brennan, D. (2023. jan. 30). The battle for Ukraine's titanium. *Newsweek*. https://www.newsweek.com/battle-ukraines-titanium-1777106

Brewster, C., Morley, M. & Bučiūnienė, I. (2010). The reality of human resource management in Central and Eastern Europe: A special issue to mark the 20th anniversary of Cranet (the Cranfield Network on Comparative Human Resource Management). *Baltic Journal of Management*, *5*(2)145-155. https://doi.org/10.1108/17465261011045098

Brodeur, A., Gray, D. M., Islam, A., & Bhuiyan, S. (2020). *A Literature Review of the Economics of Covid-19* (SSRN Scholarly Paper 3636640). SSRN. https://doi.org/10.2139/ssrn.3636640

Bundy, J., Pfarrer, M.D., Short, C.E., & Coombs, W.T. (2017). Crises and crisis management: Integration, interpretation, and research development. *Journal of Management*, *43*(6), 1661-1692. https://doi.org/10.1177/0149206316680030

Child, J. (1972). Organizational Structure, Environment and Performance: The Role of Strategic Choice. *Sociology*, *6*(1), 1-22. https://doi.org/10.1177/003803857200600101

Collings, D.G., Mcmackin, J., Nyberg, A.J., & Wright, P.M. (2021). Strategic Human Resource Management and COVID-19: Emerging Challenges and Research Opportunities. *Journal of Management Studies*, *58(*5), 1378-1382. https://doi.org/10.1111/joms.12695

Cranet (2023). *Cranet Executive Report on International Human Resource Management: Summary and Analysis of 2021-2022 Survey Data* (November 29, 2023). https://ssrn.com/abstract=4647015

Dai, L., Eden, L., & Beamish, P.W. (2017). Caught in the crossfire: Dimensions of vulnerability and foreign multinationals' exit from war-afflicted countries. *Strategic Management Journal*, *38*(7), 1478-1498. https://doi.org/10.1002/smj.2599

Dajnoki, K., Pató, B., Kun, A., Varga, E., Tóth, A., Kálmán, B.G., Kovács, I.É., Szabó, Sz., Szabó, K., Majó-Petri, Z., Dávid, L.D., & Poór, J. (2023). Impact of the three waves of COVID-19 pandemic on the HR practices of Hungarian organizations–Experience from an empirical study. *PLoS ONE* 18(6), 1-22. https://doi.org/10.1371/journal.pone.0283644

Deloitte (2022). *Reshaped by War*. Deloitte Business Development. https://www2.deloitte.com/us/en/pages/consulting/articles/russia-and-ukraine-war-economy-business-scenarios.html

Demirkaya, H., & Aydın, A. (2006). *The strategic management and reorganization of human resource management in crisis process*. 8. https://opendata.uni-halle.de/bitstream/1981185920/109397/17/688553605.pdf

Diamond, J. (1999). *Guns, Germs and Steel: A short history of everybody for the last 13,000 years.* Jonathan Cape.

Diamond, J. (2019). *Upheaval Turning Points for Nations in Crisis.* Little, Brown and Company

Doern, R. (2016). Entrepreneurship and crisis management: The experiences of small businesses during the

London 2011 riots. *International Small Business Journal*, *34*(3), 276-302.
https://doi.org/10.1177/0266242614553863

EBRD. (2022). *EU-Ukraine strategic partnership on raw materials: The European Bank of Reconstruction and Development will support digitalization of geological data in Ukraine*. https://neighbourhood-enlargement.ec.europa.eu/news/eu-ukraine-strategic-partnership-raw-materials-european-bank-reconstruction-and-development-will-2022-11-17_en

Ediz,C., Ediz, I., & Yavuz, S. (2025). Dimensions of the Ukrainian War in British Press: ATopic Modeling Approach. *LIBR*I, 75(1), 19-35.
https://doi.org/10.1515/libri-2024-0130

Elavarasan, R.M., Pugazhendhi, R., Jamal, T., Dyduch, J., Arif, M.T., Manoj Kumar, N., Shafiullah, G., Chopra, S.S., & Nadarajah, M. (2021). Envisioning the UN Sustainable Development Goals (SDGs) through the lens of energy sustainability (SDG 7) in the post-COVID-19 world. *Applied Energy*, *292*, 116665.
https://doi.org/10.1016/j.apenergy.2021.116665

EU (2024). *Think Tank reports on Russia's war of aggression against Ukraine.* https://www.consilium.europa.eu/en/documents-publications/library/library-blog/posts/think-tank-reports-on-russia-s-war-of-aggression-against-ukraine/

Eurostat (2023a). *Real GDP growth rate – volume*. https://ec.europa.eu/eurostat/databrowser/view/tec00115/default/table?lang=en

Eurostat (2023b). *Unemployment rate – quarterly data, seasonally adjusted*.
https://ec.europa.eu/eurostat/databrowser/view/tipsun30/default/table?lang=en

Eurostat (2024a). *Food price monitoring tool – Price trends along the food supply chain.* https://ec.europa.eu/eurostat/cache/website/economy/food-price-monitoring/

Eurostat (2024b). *Industrial producer price index overview.* https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Industrial_producer_price_index_overview#Role_of_the_industrial_producer_price_index

Exchange Rates.org.uk https://www.exchange-rates.org/exchange-rate-history/usd-eur-2023

Fagbemi, F. (2021). COVID-19 and sustainable development goals (SDGs), An appraisal of the emanating effects in Nigeria. *Research in Globalization*, *3*, 100047.
https://doi.org/10.1016/j.resglo.2021.100047

Fawn, R., & Drobysh, I. (2023). Visegrad and Ukraine since Maidan 2013-2014 and the Russian Invasion of 2022. *Europe-Asia Studies*, *76*(3), 314-338.
https://doi.org/10.1080/09668136.2023.2197180

Fedorenko, V., & Fedorenko, M.V. (2023). Russia's military invasion of Ukraine in 2022: Aim, reasons, and implications. *Krytyka Prawa (Critique of Law), 14*(1), 7-42.
https://doi.org/10.7206/kp.2080-1084.506

Fedynets, N. (2022). Change Management Mechanism in the Organization in Crisis Conditions. *Acta Scientiarum Polonorum – Oeconomia, 21*(3), 15-24.
https://doi.org/10.22630/ASPE.2022.21.3.10

Ferraro, V. (2023). *The Contradictions in Vladimir Putin's 'Just War' against Ukraine: The Myths of NATO's Containment, Minority Protection and Denazification*. SciELO Preprints.
https://doi.org/10.1590/SciELOPreprints.5486

Götz, M., Éltető, A., & Sass M. (2023). Still attractive for FDI? Location advantages of Visegrád countries in the digital era – the case of Poland and Hungary. *European Journal of International Management, 20*(1),66-88.
https://doi.org/10.1504/EJIM.2023.130383

Hamouche, S. (2020). COVID-19 and employees' mental health: Stressors, moderators and agenda for organizational actions. *Emerald Open Research*, *2*(15), 13550.
https://doi.org/10.1108/EOR-02-2023-0004

Gourinchas, P.O. (2020). Flattening the pandemic and recession curves. In R. Baldwin, & B. Weder di Mauro (Eds.), *Mitigating the COVID Economic Crisis: Act Fast and Do Whatever It Takes* (p. 227), CEPR Press. https://cepr.org/system/files/publication-files/60118-mitigating_the_covid_economic_crisis_act_fast_and_do_whatever_it_takes.pdf#page=38

Gurkov, I., & Dahms, S. (2024). Organizational communication strategies in response to major disruptions: The case of the worsening situation in the Russia-Ukraine conflict. *International Journal of Organizational Analysis*, *32*(6), 1127-1140.
https://doi.org/10.1108/IJOA-03-2023-3658

Hofstede, G. (2001). *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations*. Sage.

Horbulák Zs. (2022): The labour market situation in the Visegrad countries. *The EUrASEANs: journal on global socio-economic dynamics, 6*(37), 114-126. https://www.euraseans.com/6(37)

ILO (2021). *COVID-19 and the world of work.* Updated estimates and analysis (7th edition). ILO Monitor.

Kokt, D., & Chipunza, C. (2022). Remote and Hybrid Working during Crisis: Challenges and Implications for Employee Development in Africa. In Dias, D., & Magalhães, C. (Eds.), *People Management – Highlighting Future.* IntechOpen.
https://doi.org/10.5772/intechopen.107023

Koshlenko, K. (2024). *Management in Times of War: Leadership Examples from Ukraine's Government and Private Sector.* Helion.

Kostova, T., & Roth, K. (2002). Adoption of an organizational practice by subsidiaries of multinational corporations: Institutional and relational effects. *Academy of Management Journal*, *45*(1), 215-233.
https://doi.org/10.5465/3069293

KPMG (2022). *The economic impact of the Russia-Ukrainian war.* KPMG Co. https://kpmg.com/de/en/home/insights/2022/05/the-economic-impact-of-the-russia-ukraine-war.html

KSH (2020). *Foreign-controlled enterprises in Hungary, 2020.* (In Hungarian) https://www.ksh.hu/docs/hun/xftp/idoszaki/kulf_irany_vall/2020/index.html

KSH. (2023). *A vállalkozások teljesítménymutatói kis- és középvállalkozási kategória szerint* (Enterprise performance indicators by small and medium-sized enterprise category – in Hungarian). https://www.ksh.hu/stadat_files/gsz/hu/gsz0018.html

Lengnick-Hall, C.A., Beck, T.E., & Lengnick-Hall, M.L. (2011). Developing a capacity for organizational resilience through strategic human resource management. *Human Resource Management Review*, *21*(3), 243-255. https://doi.org/10.1016/j.hrmr.2010.07.001

Liu, Y., Lee, J.M., & Lee, C. (2020). The challenges and opportunities of a global health crisis: The management and business implications of COVID-19 from an Asian perspective. *Asian Business – Management*, *19*(3), 277-297. https://doi.org/10.1057/s41291-020-00119-x

Manisaligil, A., Gölgeci, I., Bakker, A.B., Aysan A.F., Babacan, M., & Gür, N. (2023). Understanding change in disruptive contexts: The role of the time paradox and locus of control. *Journal of Business Research, 156*, 113491. https://doi.org/10.1016/j.jbusres.2022.113491

Markus, S. (2022). Long-term business implications of Russia's war in Ukraine. *Asian Business – Management, 21,* 483-487. https://doi.org/10.1057/s41291-022-00181-7

Mbah, R.E., & Wasum, D. (2022). Russian-Ukraine 2022 War: A Review of the Economic Impact of Russian-Ukraine Crisis on the USA, UK, Canada, and Europe. *Advances in Social Sciences Research Journal*, *9*(3), 144-153. https://doi.org/10.14738/assrj.93.12005

Meyer, K.E., & Peng, M.W. (2016). Theoretical foundations of emerging economy business research. *Journal of International Business Studies*, *47*(1), 3-22. https://doi.org/10.1057/jibs.2015.34

Ministry of Industry and Trade of the Czech Republic. (2024). *Territorial structure of foreign trade of the Czech Republic for January-December 2022/2023.* https://www.mpo.gov.cz/cz/zahranicni-obchod/statistiky-zahranicniho-obchodu/statistika-pohybu-zbozi-12-2021-metodika-pohybu-zbozi-pres-hranice--265891/

Mitroff, I.I., & Alpaslan, C.M. (2003). Preparing for evil. *Harvard Business Review*, *81*(4), 109-115. https://hbr.org/2003/04/preparing-for-evil

Morley, M.J., Kazlauskaitė, R., Kabalina, V., & Blšťáková, J. (2020). Human Resource Management in the Post-Socialist Region of Central & Eastern Europe. In E. Parry, M.J. Morley, & C. Brewster (Eds.), *The Oxford Handbook of Contextual Approaches to Human Resource Management* (pp. 239–264). Oxford University Press.

Mura, L., Barcziová, A.,Bálintová, M., Jenei, Sz., Molnár, S., & Szalai, Sz. M. (2022a). Economic measures to recover the area of entrepreneurship: a comparative analysis Slovakia–Hungary. *Scientific Bulletin of Uzhhorod University. Series Economics, 2*(60), 15-26. https://doi.org/10.24144/2409-6857.2022.2(60), 15-26

Naseer, S., Khalid, S., Parveen, S., Abbass, K., Song, H., & Achim, M.V. (2023). COVID-19 outbreak: Impact on global economy. *Frontiers in Public Health*, *10*. https://doi.org/10.3389/fpubh.2022.1009393

Ngoc, N.M., Viet, D.T., Tien, N.H., Hiep, P.M., Anh, N.T., Anh, L.D.H., Trung, L.Q., Dung, V.T.P., & Thao, L.T.H. (2022). Russia-Ukraine war and risks to global supply chains. *International Journal of Mechanical Engineering*, *7*(6), 633–640.

Noy, C. (2008). Sampling knowledge: The hermeneutics of snowball sampling. *International Journal of Social Research Methodology*, *11*(4), 327-344. https://doi.org/10.1080/13645570701401305

OECD (2022). *OECD Unemployment Rates News Release*. January 2022. OECD.

Ostapenko,L. Vorontsova, A., Voronenko, I., Makarenko, I., & Kozmenko, S. (2023). Coverage of the Russian armed aggression against Ukraine in scientific works: Bibliometric analysis. *International Journal Studies*, *16*(3), 9-33. https://doi.org/10.14254/2071- 8330.2023/16-3/1

Osiyevskyy, O., & Dewald, J. (2015). Explorative versus exploitative business model change: The cognitive antecedents of firm-level responses to disruptive innovation. *Strategic Entrepreneurship Journal*, *9*(1), 58-78. https://doi.org/10.1002/sej.1192

Osusky, L. (2022, April 29). Europas größtes Lithiumvorkommen liegt im Donbass. *Tagesspiegel Background Verkehr – Smart Mobility*. https://background.tagesspiegel.de/mobilitaet/europas-groesstes-lithium-vorkommen-liegt-im-donbass

Palócz É. (2019). Supplements for evaluating the role of foreign companies in Hungary. (In Hungarian) *Külgazdaság*, *63*(9-10), 39-64. https://doi.org/10.47630/KULG.2019.63.9-10.39

Parry, E., Farndale, E., Brewster, C., & Morley, M.J. (2021). Balancing rigour and relevance: The case for methodological pragmatism in conducting large scale, multi country and comparative management studies. *British Journal of Management*, *32*(2), 273-282. https://doi.org/10.1111/1467-8551.12405

Paryan, P., & Hashfi, H. (2023). Unveiling the Impacts of the Russia Ukraine War on International Trade: A Systematic Literature Review. *Jurnal Ilmiah Manajemen Kesatuan 11*(2), 371-382. https://doi.org/10.37641/jimkes.v11i2.2044

Pató G-né, Sz., B., Dajnoki, K., Kovács, K., Kőműves, Zs.S., Grotte, J., Szabó, Sz., Kunos, I., Metszősy, G., Hegedűs, H., Karácsony, P., & Poór, J. (2021). HR's response to the challenges of the coronavirus pandemic (In Hungarian). *Vezetéstudomány/Budapest Management Review,* 52(8-9), 2-17. https://doi.org/10.14267/VEZTUD.2021.09.01

Payneer (2024). *Business in times of war: a Ukrainian perspective* (In Hungarian). https://www.payoneer.com/resources/research-reports/business-times-of-ukranian-war/

Pearson, C.M., & Clair, J.A. (1998). Reframing crisis management. *Academy of Management Review, 23*(1), 59-76. https://psycnet.apa.org/doi/10.2307/259099

Pitterle, I., Haufler, F., & Hong, P. (2015). Assessing emerging markets' vulnerability to financial crisis. *Journal of Policy Modeling*, *37*(3), 484-500. https://doi.org/10.1016/j.jpolmod.2015.03.010

Potori, N. (2024, March 29). Ukrainian wheat is pouring into the EU: You wouldn't believe how much has arrived this year (In Hungarian). *Agro Review (Agro Napló).* https://www.agronaplo.hu/20240329/omlik-az-ukran-buza-az-eu-ba-nem-is-hinned-mennyi-jott-be-iden-48055

Robbins, S. (2023). *Organizational Behavior* (19th ed.). Pearson Education Limited.

Roels, R. (2022). *A materials war: Ukraine and the race for resources*. European Environmental Bureau. https://meta.eeb.org/2022/07/27/a-materials-war-ukraine-and-the-race-for-resources/

Romsics, I. (2021). The effect of the coronavirus is not comparable to that of the plague. *Infostart.* https://infostart.hu/belfold/2021/01/09/romsics-ignac-a-koronavirus-hatasa-nem-er-fel-a-pestisevel

Smallbone, D., Deakins, D., Battisti, M., & Kitching, J. (2012). Small business responses to a major economic downturn: Empirical perspectives from New Zealand and the United Kingdom. *International Small Business Journal*, *30*(7), 754-777. https://doi.org/10.1177/0266242612448077

Soldatkin, V. (2023, December 12). Moscow says EU will not succeed in curbing Russian gas imports. *Reuters*. https://www.reuters.com/world/europe/moscow-says-eu-will-not-succeed-curbing-russian-gas-imports-2023-12-12/

Stachova, K., Stacho Z., Raišienė, A.G. & Barokova, A. (2020). Human resource management trends in Slovakia. *Journal of International Studies*, *13*(3), 320-331. https://doi.org/10.14254/2071-8330.2020/13-3/21

Teece, D., Peteraf, M., & Leih, S. (2016). Dynamic Capabilities and Organizational Agility: Risk, Uncertainty, and Strategy in the Innovation Economy. *California Management Review*, *58*(4), 13-35. https://doi.org/10.1525/cmr.2016.58.4.13

Ton, D.A., Hammerl, L., Weber, D., Kremer, O., & Szabo-Szentgroti, G. (2022). Why leaders are important for cross-functional teams: Moderating role of supportive leadership on knowledge hiding. *Problems and Perspectives in Management, 20*(3), 178-191. https://doi.org/10.21511/ppm.20(3):2022.15

UNCTAD. (2020). *The COVID-19 Shock to Developing Countries: Towards a "whatever it takes" programme for the two-thirds of the world's population being left behind* (UNCTAD/GDS/INF/2020/2; Trade and Development Reports). United Nations Conference on Trade and Development. https://unctad.org/system/files/official-document/gds_tdr2019_covid2_en.pdf

Uvarova, O., & Saprykina, M. (2023). *Responsible Business Conduct during War in Ukraine Context Assessment Study.* United Nations Development Programme. (UNDP), https://www.undp.org/ukraine/publications/responsible-business-conduct-during-war-ukraine-context-assessment-study

Vinkóczi, T., Koltai, J.P., Nagy, N.G., Szabó-Szentgróti, E., & Szabó-Szentgróti, G. (2023). The Sustainable Contribution of Artificial Intelligence to Higher Education – Results of a Pilot Study. *Chemical Engineering Transactions*, *107*(June), 487-492. https://doi.org/10.3303/CET23107082

Vittuari, M., Masotti, M., Iori, E., Falasconi, L., Gallina Toschi, T., & Segrè, A. (2021). Does the COVID-19 external shock matter on household food waste? The impact of social distancing measures during the lockdown. *Resources, Conservation and Recycling*, *174*, 105815. https://doi.org/10.1016/j.resconrec.2021.105815

WEF (2023). *The Global Risks Report 2023 (*18th Edition). World Economic Forum.

Wenzel, M., Stanske, S., & Lieberman, M.B. (2021). Strategic responses to crisis. *Strategic Management Journal*, 42(2), O16-O27. https://doi.org/10.1002/smj.3161

Williams, T.A., Gruber, D.A., Sutcliffe, K.M., Shepherd, D.A., & Zhao, E.Y. (2017). Organizational Response to Adversity: Fusing Crisis Management and Resilience Research Rtreams. *Academy of Management Annals*, *11*(2), 733-769. https://doi.org/10.5465/annals.2015.0134

World Bank (2024). *Global Economic Prospects January 2024*. https://openknowledge.worldbank.org/server/api/core/bitstreams/7fe97e0a-52c5-4655-9207-c176eb-9fb66a/content

Zaharia, R.M., Poór, J., Ratiu, P., & Osoian, C. (2019). International assignments, human capital resources and MNC subsidiary performance in CEE countries. *Business & Management Journal*, *11*(2), 127-138. https://doi.org/10.1108/MBR-08-2019-0094

Zaremba, A., Aharon, D.Y., Demir, E., Kizys, R., & Zawadka, D. (2021). COVID-19, government policy responses, and stock market liquidity around the world: A note. *Research in International Business and Finance*, *56*, 101359. https://doi.org/10.1016/j.ribaf.2020.101359