The Transboundary Role of Higher Education Institutions for Public Administration in Times of Crisis: A Case-Study From the Russia-Ukraine War

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The Russian invasion of Ukraine unfolded a series of overlapping crisis, revealing severe governmental weaknesses at national, regional, and global level, and posing important challenges to vital pillars of our society. This paper provides a reflexive study aiming to challenge a broader discussion regarding possible policies, practices or solutions to public administration and management challenges during crisis: how do we organize to deal with the levels of complexity, uncertainty and extreme operating conditions brought about by the so called "transboundary crisis"?

The contextual analysis identifies the main challenges for public administration and management in the conflict zone during the current war; for assessing the response of the national governmental body's functions coping with the continuous assaults; and for discussing the role of higher education institutions work as bridges for internal and international cooperation, while providing a real-life model of leadership, management, and governance during crisis with their own communities.

Keywords: war, transboundary crisis, higher education institutions, public administration, Russia, Ukraine

INTRODUCTION

Governments across the globe are increasingly realizing the constraints of their public administration capabilities, particularly during uncertainty and crises. Various events such as the Russia-Ukraine conflict and its consequent effects, financial instability, cross-border refugee movements, cyber-attacks, urban terrorism, and environmental threats, including earthquakes, hurricanes, and climate change, highlight the intricate origins and transboundary dimensions of many present-day public affairs. These events serve as potent reminders of policymakers' complexities in addressing multifaceted issues that transcend national boundaries (Boin & Blondin, 2020).

The pivotal role of higher education institutions in addressing transboundary crises is a significant matter in shaping robust pre-disaster conditions as well as the recovery and reconstruction processes. The emergence of various factors such as increased vulnerabilities, diversity, equity, and justice concerns, as well as political polarization and fragmentation, have led to the questioning of existing crisis prevention

and management frameworks. These developments signify the conceptualization of complex and challenging problems or "wicked problems" (Brown, Harris & Jacqueline, 2010; Conklin, 2006; Rittel & Webber, 1973; Roberts, 2000), and the need to recognize the role of higher education institutions, focusing particularly on the Public Administration of Transboundary Crisis, in addressing the intricate nature of the multilevel, multisectoral, multi-perspective, multidisciplinary, and multistakeholder realities on the ground.

This paper aims to provide a reflexive study of the role of higher education institutions in addressing transboundary crises aiming to challenge a broader discussion regarding possible policies, practices or solutions to public administration and management challenges during crisis, assessing the context of the Russia-Ukraine war. The main research questions that represented the focus of the paper are: *how do we organize to deal with the levels of complexity, uncertainty and extreme operating conditions brought about by the so-called "transboundary crisis?*; more specifically, *what role does local knowledge organization, especially local universities, play in helping these societies emerge "bouncing back better" from these compounded, overlapping, cascading crises conditions?*; ultimately, *what barriers and opportunities exist to innovative approaches in university community relations towards resilience building, enhancement, and its sustainable development?*

The case-study analysis points out the main challenges for public administration and management during crisis discussing the national governmental body's functions coping with the developments. It provides recommendations for higher education institutions to work as bridges for internal and international cooperation, as a real-life model of leadership, management, and governance during crisis with their own communities, such as faculty, students and administrative personnel, assuming responsibility for all their members, including the most vulnerable groups. While discussing efficient public administration practices during war, the assessment of the transboundary role of higher education institutions both as knowledge-producing institutions and as civic actors during crisis play a key role for this paper.

Therefore, in order to respond to the main research question and discuss the case study, the paper is tailored in four main parts: firstly, a conceptual analysis of the main terms, secondly, a literature-review-based theoretical discussion of the role of higher education institutions during the times of crisis, thirdly, the case-study analysis based on the Russia-Ukraine war; and lastly, the conclusion that summarizes the main ideas presented and makes recommendations related to the problems that have been discussed.

Conceptual Analysis: "Wicked Problems" and "Transboundary Crisis" in the Context of "Conflict" and in the Frame of "Public Administration"

The notion of "wicked problems" that is now representative for most of the crisis faced by our interconnected societies has its roots in the domain of planning, and it was initially advanced by Horst Rittel, a design professor, during a seminar held by the Department of Architecture at the University of California, Berkeley, in 1967. The concept pertains to multifaceted and arduous issues that are characterized by an incomplete definition and the absence of a definite solution (Rittel and Webber, 1973). Wicked problems have been assimilated into numerous fields, including but not limited to business management, environmental governance, education, sociology, public policy, and international relations, generating significant scholarly interest across multiple disciplines.

The academia has delved into the genesis of the wicked problem construct, scrutinizing its delineation, taxonomy, and resolution through the lens of one or more respective disciplinary expertise, thereby endowing it with transdisciplinary traits (Camillus, 2008). Notably, several crucial theoretical, conceptual, and empirical quandaries have been broached in the scholarly literature, yet consensus remains elusive. Given the coexistence of fragmented yet interlinked societal predicaments, addressing wicked problems necessitates cross-disciplinary collaboration and resists mono-disciplinary and purely rational approaches.

The concept of wicked problems lacks a clear definition and is typically characterized by epistemological perspectives and typology. Early studies viewed wicked problems as a special type of policy problem that is the opposite of tame problems but failed to recognize the systemic complexity and transboundary nature of wicked problems. Wicked problems have been defined by several scholars, including Rittel and Webber (1973), Roberts (2000), and Xiang (2013), but recent research suggests that wicked problems are not a special kind of problem but systematic and continuous problems. Wicked

problems are challenging to cope with because they cross boundaries between countries, policy domains, organizations, and scientific disciplines, and are situated in transnational spaces with overlapping jurisdictions, interlinked policy spheres, and much contestation, threat, aggression, emotion, and fear. The transboundary of wicked problems indirectly reflects that the knowledge involved has coherence characteristics. Transdisciplinary approaches are helpful in studying wicked problems, but the concept lacks a precise definition, which can become an excuse for the public sector's reluctance to tackle complex social problems.

Within the framework of our paper, wicked problems are intricate and intricate social predicaments characterized by a high degree of complexity and elusiveness, stemming from the incomplete, conflicting, and continuously evolving requirements of diverse stakeholders in different settings. Moreover, each issue is interconnected with other predicaments and is part of a network of interconnected problems. As a result, resolving a mess is seldom attainable through the independent resolution of each constituent issue, as posited by Ackoff (1974), Rittel and Webber (1973), and Head (2019).

Due to the development of events on the global level, there has been a shift in research focus towards the nature and consequences of crises that transcend boundaries. Typically, a crisis is defined as a shared perception of a threat to a fundamental aspect or value of a society, necessitating immediate action by authorities under conditions of significant uncertainty (Rosenthal et al., 1989). We argue that a transboundary crisis expands upon the earlier definition, as its origin, spread, and implications are experienced across borders. The transboundary crisis can traverse various boundaries, including geographical, policy, political, cultural, linguistic, and legal. Transboundary crises, which are intertwined with increasingly complex critical infrastructures and free-flowing forces linked to globalization, such as cyber breakdowns, the spread of pandemics, and massive migration flows, are the typical examples. In contemporary times, various crises, including the Eurozone crisis, the recent Ebola outbreak, and refugee tragedies, traverse both national borders and policy domains, as evident from the literature (Ansell, Boin, and Keller et al., 2010; Beck, 2008; Lagadec, 2009; OECD, 2003). The causes and consequences of such crises have increasingly become transboundary, making it arduous for nation-states to address them independently. Effectively managing these crises demands international collaboration among states and policy sectors (Ansell, Boin, and Keller et al., 2010; Sandler, 1997), but such cooperation is not always forthcoming.

Therefore, a transboundary crisis crosses geographical and policy boundaries and requires transboundary crisis management capacities. The effective management of transboundary crises typically requires international collaboration among states and between different policy sectors, which can be organized at the transboundary level. However, the literature on collective action and crisis management is skeptical about the prospects of international collaboration in the face of complex and rapidly evolving crises. The literature identifies many challenges in managing a transboundary crisis, such as sharing information, making decisions without clearly defined mandates, and aligning communication. The article notes that there are two paradigms at work: collective action research, which relies on a rational actor approach, and crisis management research, which complicates this picture by problematizing the formation of actor preferences. Both literatures agree that a joint crisis response is unlikely at best, but the crisis literature brings to the fore a set of cases in which collaboration did happen, allowing us to identify enabling factors.

As a result of exploring the factors that affect the emergence of transboundary crisis management collaboration, Blondin and Boin (2020) reviewed the collective action and crisis management literature and found that collaboration between states is unlikely unless it is in their interest, or they are coaxed to collaborate. The literature identifies three barriers that must be overcome: acceptance of the necessity of collaboration, agreement to collaborate, and joint implementation of the agreed-upon strategy. Blonding and Boin (2020) also pointed out conditions and factors that can help states overcome these barriers, such as interdependence, low politicization, mutual trust, small group of affected states, coordination mechanisms, feasible solutions, and recognized leadership. A graphic version of their understanding of the barriers and factors operating on them can be found in FIGURE1.

FIGURE 1
A PROCESS MODEL OF TRANSBOUNDARY CRISIS COLLABORATION
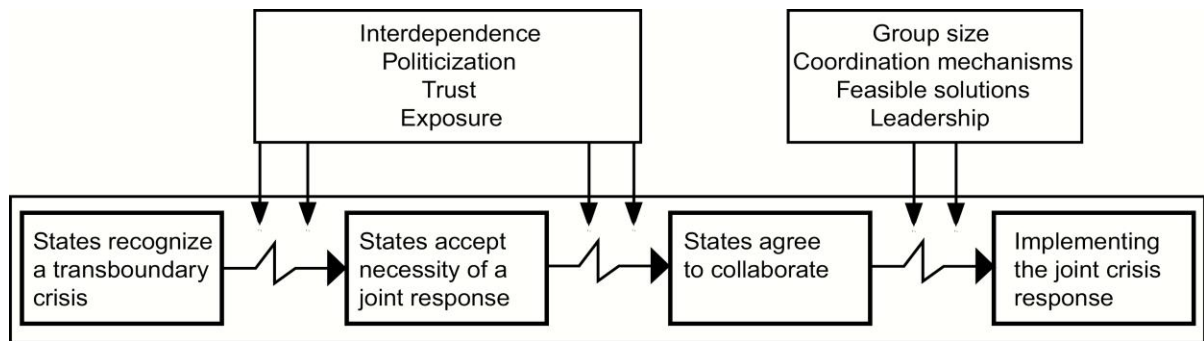
Blondin & Boin, 2020

TRANSBOUNDARY CRISIS AND THE ROLE OF HIGHER EDUCATION INSTITUTIONS

Crises and disasters feature high on political and public agendas around the world. Practitioners wrestle with the challenge to provide protection while maintaining legitimacy. They pine for insights that lie at the heart of public administration: designing effective institutions and preserving transparency; enabling and empowering citizens without undermining a coordinated response; balancing long-term risks against short-term needs; bridging the divide between theory and practice, and between the public and private sectors. But the public administration community is strangely absent in the debates about designing institutions that protect against transboundary threats and critical infrastructure failures. It has parked itself on the sideline, concerning itself with the routine governance processes (Boin & Lodge, 2016). Acknowledging the continuous evolution of global crisis types and dimensions, this paper emphasized that the time has long come for higher education institutions and public administration scholars to prioritize crisis and disaster management in their primary research agendas, while taking a more active role in all phases of transboundary crisis.

The uncertainties associated with climate change, pandemics, geophysical phenomena, social upheaval, and war, etc. are compounded exponentially by the governance model, sectorial power distribution, the intergovernmental relations at each and across levels, the perspective spectrum, magnitude of political divisiveness and levels of inequity and injustice these extreme events encounter at the time of impact. Whether slow and creeping, or sudden and catastrophic, the capacity to manage these crises has become itself an area of study and concern by many in public affairs and administration (Boin, 2021; Boin & Hart, 2022) known as transboundary crisis management. According to Boin (2021), the complexity of these situations surpasses the previously labeled as wicked problems by Rittel and Weber (1973), outstripping the capacity of any single expertise in any single discipline in its ability to completely linearly and with a single rationality deal with its multiverse of possible actions, processes, outcomes and subsequent adaptations and transformation.

Nescient efforts to shift attention to this type of issue are on the rise albeit slowly. Professor Martin Lodge, Director of Trans Crisis, a collaborative research project funded by Horizon 2020 which has brought together experts from across Europe to assess the EU's capacity to manage transboundary crises suggests, "Crisis is about elements of uncertainty, threat, and urgency. Transboundary crises are not just cross-jurisdictional crises, but involve other types of boundaries, whether sectoral, professional, legal, or organizational. Transboundary crises are ,phenomena that challenge any form of organization at whatever level of government. They defy categorization and managing them requires coordination." He goes on to add thar operationally, their definition of transboundary crisis was therefore broad, looking for what the people themselves understood as a transboundary crisis, and focusing on three areas, namely a) the 'traditional' civil protection area of crisis management, for example in pandemics or natural disasters, b) crisis emerging as part of the Single Market, be it in the area of banking, electricity or invasive alien species,

and c) in the area of 'backsliding', namely the rejection by certain member states of constitutional liberal democracy. In this context, the authors propose Institutions of Higher Learning, mainly universities as boundary-spanning objects that can simultaneously bridge the multiplicity of perspectives involved in Transboundary crisis settings. What is their role? How can they best achieve it?

Institutions of higher education have for centuries existed as "Ivory Towers" in a diversity of landscapes around the world. In fact, the "Ivory Tower Model" expression comes from the Bible and means purity. However, in recent times such expression is more related to unworldly seclusion, an individual development that happened in isolation, apart from the rest of society. In the university environment, it translates to the highly stratified and segmented social structure universities have developed since medieval times and their tendency to divorce knowledge from day-to-day experiences and needs. Whether private or public, market or stakeholder based, land grant or those of national and international prestige, universities come in all sizes, types, historic, economic, and socio-political contexts. Today, Universities have been identified as important actors at the local and regional level. According to the National Center for Education Statistics (NCES, 2021), there are a little less than 4,600 accredited universities and colleges in the United States. They impact almost 20 million students and close to 4 million faculty and non-faculty employees. The also impact important decision-making processes from the towns zoning laws to regional economic policies. They also generate knowledge and technology that greatly impact millions of Americans' daily lives. Therefore, presidents of prestigious universities refer to these institutions as anchor institutions. Michael Crow, president of Arizona State University states that universities *"must serve as pillars of the community, committed not only to the success of its students, but also to the success of their place"* (ASU, 2017). Drew Gilpin Faust, President of Harvard University and John L. Hennessy, President of Stanford University also say that "Universities uniquely bring together a wealth of intellectual resources across fields, an abundance of creativity and collaborative energy across generations, an opportunity to convene key actors on neutral ground, a commitment to serving society in ways that privilege objective evidence and rigorous analysis and the dedication to pursuing powerful long-term solutions without becoming subservient to near-term economic interests or partisan political concerns." (Huffpost, September 2014). Consequently, universities have the potential to promote and facilitate sustainable, just, and democratic energy transitions.

Universities provide diverse knowledge and expertise that can readily be mobilized in response to emergency community needs. Universities have access to a variety of professionals, motivated volunteers, great leaders who can achieve throughs against difficult issues, as well as access to advanced technology, engineering skills, state-of-the-art equipment, and cutting-edge facilities. It is this comprehensive strength that makes universities such an important part of our society, even in a disaster situation. Universities should go much further, playing a central role in all phases of the disaster recovery continuum. (Aoki and Ito, 2014). But what about their role in Transboundary Crisis Management? Most analysis about the role of universities continues to concentrate on post disaster activities, despite the recognition that universities are not responders. Aoki and Ito (2014) suggest, "as for the immediate aftermath (i.e., response phase), universities do not seem to be useful compared to, say, military personnel, emergency rescue teams, and Red Cross officials. However, we learned from the 2011 disaster that a university is also expected to take a leading role in disaster response by mobilizing diverse knowledge and expertise. What we found was that universities are more effective in bringing knowledge and expertise rather than simple manpower." Here we find a tacit recognition of knowledge organization and mobilization as critical infrastructure. Furthermore, serious questions have emerged to the "expert" model of knowledge transfer. Universities vary considerably in many tangible and intangible ways including funding regimes, regulatory structures, disciplinary scope, and cultural perceptions of the value of universities, the experience of global phenomena such as climate change and the COVID-19 pandemic has once again reopened an older set of questions around what universities are for and what they can do to mitigate the impacts when disasters strike. The traditional roles of universities in knowledge production through research and the education of new generations of students has not altered, but the means of achieving these objectives does change and, in the age of increased disaster exposures, in some significant ways. Moreover, given the emergence of disaster challenges, a range of new questions come into clearer view for universities as they seek to ensure their own security and reproduction as well as address their social mission, that is, the needs of the wider societies

to which they belong. The priority for scientific knowledge and political action to reduce risks from disasters must be on climate mitigation (V. Masson-Delmotte et. all, 2018; V. Masson-Delmotte wt. all, 2021). This narrative hides the political aspects of knowledge, and the levels of manipulation local, national, and international political bodies will engage in for political gains in the face of disasters. We have all heard the Hans Blumemberg (1957) metaphor of scientific knowledge operating of a "beacon of light" to uncover truth. In it, "light can be a directed beam, a guiding beacon in the dark, an advancing dethronement of darkness, but also a dazzling superabundance, as well as an indefinite, omnipresent brightness containing all: the "letting appear" that does not itself appear, the inaccessible accessibility of things." However appealing, the power struggle to control that light, has now become a concern of the field of agnotology (Proctor, 2009). Arguing that ignorance is not the anti-thesis of knowledge, that it is indeed a process that can be manufactured, captured, and utilized to maintain the political status quo is now recognized as part and parcel of what Funtowicz and Ravetz have called the world of "post-normal science". While this article does not provide the space to dive into cases of the political capture academic institutions and the dire consequences that the manufacture of ignorance has in terms of lost lives in transboundary crisis settings, no discussion of the role of universities in these circumstances would be complete without its mention.

To enable future resilience within current risk scenarios, new knowledge and thinking are required concurrently. Universities have a central role as knowledge generators and educators in society and so are uniquely placed to contribute to this process. The role of academia, scientific and research entities, and networks was highlighted in the Sendai Framework for Disaster Risk Reduction 2015–2030 (UN, 2015) to: **increase research for regional, national, and local application; support action by local communities and authorities; and support the interface between policy and science for decision-making.**

In short, universities can produce knowledge that facilitates societies trying to tackle disasters' immediate and long-term impacts. This involves seeing universities as part of society's critical infrastructure and highlighting their role and resilience as a public good.

CASE-STUDY: THE RUSSIA-UKRAINE WAR

Public Administration and Management During Times of War

The case-study analysis points out the main challenges for public administration and management during crisis discussing the national governmental body's functions coping with the developments. It provides recommendations for higher education institutions to work as bridges for internal and international cooperation, as a real-life model of leadership, management, and governance during crisis with their own communities, such as faculty, students and administrative personnel, assuming responsibility for all their members, including the most vulnerable groups. While discussing efficient public administration practices during war, the assessment of the transboundary role of higher education institutions both as knowledge-producing institutions and as civic actors during crisis play a key role for this paper.

For a better understanding of the case-study, TABLE 1 gathers several sociodemographic details relevant to the research, for the country at crisis - Ukraine.

The Russian invasion of Ukraine unfolded a series of overlapping crisis, revealing severe governmental weaknesses at national, regional, and global level, and posing important challenges to vital pillars of our society. Since the beginning of the war, all Ukrainian institutions have become military targets, challenging the most recent public-administration system and civil service reforms in the country. Beyond the violent reality of the open conflict, this paper draws into the Russia-Ukraine war to provide a reflexive study to challenge a broader discussion regarding possible policies, practices or solutions to public administration and management challenges during crisis.

TABLE 1
SOCIODEMOGRAPHIC INFORMATION OF THE FOCUS-COUNTRY

	Ukraine
Population in 2021	43.79 million[1]
Gender **Female** **Male**	 53.66% 46.34%
Race	Ukrainian 77.8%, Russian 17.3%, Belarusian 0.6%, Moldovan 0.5%, Crimean Tatar 0.5%, Bulgarian 0.4%, Hungarian 0.3%, Romanian 0.3%, Polish 0.3%, Jewish 0.2%, other 1.8%
Income per capita	**4,862.12 USD**
gross domestic product	200.1 billion USD
Public university systems	1
Number of campuses	Over 200

The Ukrainian government's efforts to implement public governance and rule of law-related reforms have been impeded due to Russia's large-scale war of aggression against Ukraine. Since the 2014 Revolution of Dignity, Ukraine undertook a series of reforms in public administration aiming to reach the OECD and EU standards as part of its broader European integration strategy. The Principles of Public Administration (OECD, 2017) served as a cornerstone of these reforms. Despite the challenges presented by the ongoing conflict, the Public Administration Reform Strategy (Ordinance of the Cabinet of Ministers of Ukraine on 24 June 2016 No.474) and its corresponding Action Plan, had been successfully implemented reaching 57% of its performance targets and finalizing 87% of its planned actions by the end of 2021 (Secretariat of the Cabinet of Ministers of Ukraine, 2022).

The rollout of the updated Public Administration Reform Strategy for 2022-2025, along with its corresponding Action Plan (Strategy for Public Administration Reform in Ukraine for 2022-2025, Approved by the Ordinance of the Cabinet of Ministers of Ukraine 21 July 2021), centered on three main priorities: *provision of high-quality public services to citizens and businesses, establishment of a professional and politically impartial public service, and creation of effective and accountable public institutions*. These priorities were determined by the recommendations of the 2018 OECD/SIGMA Baseline Measurement (OECD, 2018). The Principles of Public Administration served as a foundation for both the strategic framework of public administration and the newly implemented Public Financial Management Strategy and Action Plan for 2022-2025 (Public Financial Management System Reform Strategy 2022-2025 and its Action Plan, Approved by the Ordinance of the Cabinet of Ministers of Ukraine 29 December 2021). The reform period built a foundation for strategic planning, policy development, and coordination among governmental bodies. Ukraine enhanced its legislative and regulatory framework for regional development, modernizing its multi-level governance architecture for regional development planning, financing, and investment. This involved the establishment of the State Strategy for Regional Development (SSRD), regional development strategies for each oblast, and numerous municipal development plans and corresponding action plans that identified priority investments. These initiatives facilitated a degree of clarity concerning the government's territorial development aims and objectives. As part of the territorial reform program, in 2014, Ukraine embarked on a multi-year process that culminated with establishing 1,469 municipalities, representing a substantial reduction from the prior count of over 10,000 local councils. This was achieved through a voluntary amalgamation procedure complemented by

a robust decentralization effort, leading to a significant rise in the administrative and service delivery obligations of municipalities and an expansion of their income streams.

According to initial results from a 2021 OECD survey, Ukraine had made significant progress in tackling certain territorial disparities before the outbreak of war. Among the 741 municipalities examined, 79% reported an improvement in the quality of administrative service delivery after 2014, and 71% reported an increase in the quality of social service delivery. However, the progress made in areas such as housing, energy, and assistance to small and medium-sized enterprises was limited. Notably, improvements in the quality of municipal service delivery were accompanied by enhancements in various well-being metrics. For instance, between 2015 and 2019, the proportion of the population living below the subsistence income dropped from 52% to 23% (Cabinet of Ministers of Ukraine, 2021), while internet access surged by 240% across Ukraine over the previous decade (Synowiec, 2021). Despite these gains, nearly all regions of Ukraine were grappling with population decline and a diminishing labor force, which was taking a toll on productivity and economic growth. However, the national economy had also grown increasingly reliant on the Kyiv agglomeration, with other regions struggling to keep pace.

Through its collaboration with the OECD, the Government of Ukraine subscribed to the OECD Recommendation on Effective Public Investment across Levels of Government in 2018. This recommendation aims to enable governments at all levels to evaluate their public investment capacity strengths and weaknesses by utilizing a whole-of-government approach. Nonetheless, the implementation and financing difficulties of regional and local development strategies and initiatives pose a risk to perpetuating territorial disparities, as it was reflected in the regional crisis witnessed from the first days of the war.

As emphasized above, Ukraine's regional development and decentralization reforms in the aftermath of the Maidan revolution in 2014 have played a vital role in strengthening the resilience of the country's regions and municipalities. Moreover, these reforms have facilitated the provision of continued support to the citizens of Ukraine, even in the face of Russia's aggressive military intervention. Despite the devastating impact of the conflict, Ukrainian municipalities have demonstrated resilience. Regional and municipal governments have been integral to the efforts to counter the evolving crisis during the war, using the administrative service centres created as part of post-2014 decentralisation reforms to register internally displaced persons, provide access to social benefits, and coordinate humanitarian aid. They have also played a key role in the reconstruction and recovery process by identifying local investment needs.

Still, Russia's aggression against Ukraine has led to a significant humanitarian crisis and has impeded Ukraine's development progress. The conflict has resulted in a massive refugee crisis, with 7.8 million refugees and 6.2 million internally displaced persons as of 22 November 2022 (UNHCR, 2022). Reports suggest a recent increase in migrants returning to Ukraine, but there is no clear data on the number of permanently resettled migrants (CSIS, 2022; CEPA, 2022). The UN High Commissioner for Human Rights recorded 16,295 civilian casualties as of 31 October 2022 (OHCHR, 2022). The conflict has further exacerbated governance challenges and territorial disparities across Ukraine by diminishing many municipalities' human and fiscal resource capacities. On the ground, the war has affected regions and municipalities differently, with some communities suffering significant losses while others have been able to provide aid and support to internally displaced persons. Therefore, although regional development and decentralization reforms have made progress, Russia's war of aggression against Ukraine has made the demographic challenge that Ukraine already faced much more severe, with millions fleeing the violence. These pre-existing development challenges should be considered by national and subnational policymakers when making decisions to meet the immediate needs of reconstruction and promote long-term recovery and resilience.

While the multi-level governance reforms that Ukraine implemented after 2014 offer a foundation for effective reconstruction that considers differentiated needs and remaining assets, several governance challenges must be addressed, despite the events of February 2022. To achieve successful subnational recovery, Ukraine must strengthen its regional development funding mechanisms and practices, which may have had a negative impact on investment outcomes in recent years. For example, between 2015 and 2019, investment funding was distributed among 110 separate regional and local development grants, resulting in

inefficiencies in spending and implementation. Moreover, most of the State Fund for Regional Development funding was allocated to small-scale community-level projects rather than projects with higher economic returns that spanned regions or inter-regions. Overcoming these challenges is even more critical during the reconstruction and recovery phase, particularly to ensure that investments in rebuilding physical infrastructure and human capital are effective, transparent, and efficient.

Enhancing subnational capacity is critical for regions and municipalities to contribute effectively to post-war recovery. While the results of the OECD's 2021 survey indicated that the decentralization reforms have resulted in significant improvements in municipal planning, budgeting, and investment management skills, significant capacity gaps must be addressed, particularly in rural municipalities. For example, in 2021, only 67% of rural areas could design local development strategies, compared to 80% of urban municipalities (OECD, 2021). To ensure that local governments have the necessary expertise to design and implement reconstruction projects and provide service delivery, it is essential to establish and implement a robust training strategy for municipalities that can be customized to different territorial contexts and needs. The reinforcement of subnational capacities would become even more critical if Ukraine were to make significant reductions in its civil service, as has been discussed recently (Liga Zakon, 2022).

The absence of a clear allocation of tasks and responsibilities among levels of government prior to February 2022 could potentially impact effective reconstruction efforts (OECD, 2022). This lack of clarity is particularly evident in sectors critical to reconstruction, such as roads, transportation, and energy. The ambiguous assignment of responsibilities can lead to uncoordinated action or inaction by different governmental actors. In a crisis scenario, this may result in shifting responsibility to other levels of government, resulting in a disjointed and ineffective response. Dialogue between national and subnational levels of government has been limited due to the incomplete operation of key coordination bodies, such as the Inter-Departmental Coordination Commission for Regional Development, or municipal governments' lack of systematic participation.

The resilient response of Ukraine's regions and municipalities to the war and its aftermath and the reconstruction and recovery efforts can be attributed to the effective implementation of decentralization and regional development reforms following the 2014 Maidan revolution. These reforms involved merging local councils into municipalities, which were granted additional administrative powers and funding. This also entailed the creation of new inter-governmental grants and a higher share of municipal revenues derived from shared taxes. As a result, as of October 2021, over 70% of the 741 surveyed municipalities by the OECD (representing 51% of all Ukrainian municipalities) have reported improvements in the quality of administrative and social services. Ultimately, these decentralization reforms have empowered subnational authorities to adapt their emergency responses to local needs, enabling them to better protect civilians.

Concurrently, from 2014, Ukraine has established a comprehensive policy, governance, and funding structure to facilitate regional development. The allocation of resources to support regional and local development has tripled in real terms from 2015 to 2019. Additionally, the instituted reforms have engendered the establishment of various national and subnational bodies responsible with policy coordination, such as regional development agencies. These entities support the formulation and implementation of territorial development strategies and initiatives, while simultaneously deal with both public and private investment. Given their mandate, these agencies are optimally situated to support the post-conflict rehabilitation of regions and municipalities by assisting local authorities in identifying local restoration needs and coordinating the planning and execution of reconstruction endeavors.

During the implementation of the reforms, Ukraine made significant strides in key developmental areas, including poverty reduction and internet accessibility. Notably, the proportion of the population living below the nationally defined subsistence income level declined by more than half, from 52% to 23%, between 2015 and 2019 (CabMin, 2021). Furthermore, internet access grew by 30% during the same period, although the progress was more remarkable in urban areas than rural areas (CabMin, 2021). This advancement is especially pertinent in the backdrop of Russia's war, as improved internet access facilitated the provision of digital services, such as online education during the conflict, and the identification of bomb shelters.

Institutions of Higher Education in the Russia-Ukraine War: Local Knowledge at Risk

Beyond the existing collaborations between universities inside and outside Ukraine that have been providing opportunities to Ukrainian students and scholars, there are warnings regarding relevant issues such as the threat of brain drain as a result of forced displacement, the lack of contextual understanding of the real needs of the Ukrainian academia as representatives of the Ukrainian nation, and the situation of the most vulnerable groups that should have benefited from these collaborations – the international students and scholars who were trapped in the conflict.

Moreover, when the war started, universities across Ukraine hosted more than 70,000 international students, enrolled in various degree programs. Most of those students came from developing nations, looking for a high-quality and affordable education. The war forced them to leave together with the local population, but, unlike the Ukrainian citizens, the foreign students and researchers faced another level of interstate crisis: the lack of visas or necessary documents to enter neighboring countries that are part of the European Union, the lack of access to clean water or food, and, above everything, uncertainty about their future. The European Union's regulations provided temporary residences permits to Ukrainian citizens and 'third country nationals' who are married to or in a long-term partnership with a Ukrainian citizen, to people who were recognized as refugees in Ukraine, and to those who cannot safely return to their home countries, in particular people from Syria, Afghanistan, or Eritrea. However, many international students and scholars caught in the Russia-Ukraine war do not fit into any of these categories, facing an uncertain future and being unable to continue their studies.

According to a recent study of the war impact on the university students and personnel conducted throughout Ukraine, most respondents (97.8%) reported deterioration of their psycho-emotional status including depression (84.3%), exhaustion (86.7%), loneliness (51.8%), nervousness (84.4%), and anger (76.9%)—students more than personnel, females more than males (Kurapov, Pavlenko, Drozdov, Bezliudna, Reznik & Isralowitz, 2023). The use of substances (i.e., tobacco, alcohol, pain relievers, and sedatives) has increased as well as loneliness associated with fear, burnout, and lower resilience (Kurapov, Pavlenko, Drozdov, Bezliudna, Reznik & Isralowitz, 2023). However, despite these conditions, 12.7% of respondents reported that the war has not affected them.

The impact of armed conflicts on education has generated significant humanitarian and social concerns among international organizations and scholars. UNESCO, for example, has been providing emergency training and emphasizing the importance of access to learning opportunities during crises to sustain life. UNESCO has also launched programs to support online education, develop digital educational platforms and content, implement electronic assessment systems for higher education, and provide psychosocial support to participants in the educational process in Ukraine. Similarly, UNICEF has played a significant role in addressing education-related issues in Ukraine by producing the report "Children and the War in Ukraine" and regularly reviewing the humanitarian situation to identify areas for aid, including support for education. The Global Coalition to Protect Education from Attacks (GCPEA), formed in 2010 to combat targeted attacks on education during armed conflicts, has been conducting research and preparing reports on the state of education in countries experiencing conflict, with analytical reports called "Education Under Attack" regularly published.

In Ukraine, education-related issues in the context of war became particularly relevant following the occupation of Crimea and parts of the eastern regions of the country by Russia in 2014. Scholars at Drahomanov National Pedagogical University analyzed the role of education in building peace and the problems of education in Ukraine during hybrid war (Terepyschyi, Svyrydenko, Khomenko, Zaichko, Dunets, Dodonov, et al. 2020). They also paid attention to the international practice of reintegration of higher education and the activities of displaced universities in Ukraine. Scholars at the Institute of Pedagogy of the National Academy of Pedagogical Sciences of Ukraine systematized the recommendations of international organizations regarding education in wartime conditions. In addition, Kharkiv IT Cluster and the independent analytical center and community Cedos have provided important information and discussion materials on the impact of war on higher education in Ukraine.

Immediately before the 2022 conflict, Ukraine possessed a significant number of higher education institutions that possessed the capacity to train skilled professionals for its economy. As of February 10,

2022, there were 336 universities, academies, and institutes, as well as 96 other higher education institutions such as schools, technical schools, and colleges, with a total enrollment of 1,335,700 students at levels 5-8 of the Framework of Qualifications. These levels include Junior Specialist (362.5 thousand individuals), Bachelor's degree (707.3 thousand individuals), Master's degree (240.7 thousand individuals), and Doctor of Philosophy (25.1 thousand individuals), according to the Institute of Educational Analytics (2022). With a share of 3.3% of the total population, Ukraine's proportion of students is similar to that of developed European countries. In comparison, Germany's proportion of students was 3.9% in 2020, Italy's was 3.4%, Spain's was 4.5%, and France's was 4.1% according to our calculations based on Eurostat data (Eurostat, 2022).

Ukraine has several prominent universities capable of providing high-quality educational services and scientific research. In the national rankings of Ukrainian higher education institutions, which assess academic, scientific publishing, international activity, and research accomplishments, the top five universities in the 2022 Top-200 Ukrainian Universities rankings were Shevchenko Kyiv National University, Sikorskyi Kyiv Polytechnic Institute, Karazin Kharkiv National University, Lviv Polytechnic Institute, and Kharkiv Polytechnic Institute. Additionally, 11 Ukrainian universities were included in the QS World University Rankings 2023, including Karazin Kharkiv National University, which was ranked in the 541-550 range, Shevchenko Kyiv National University, and Sikorskyi Kyiv Polytechnic Institute, both ranked between 651 and 701 (QS World University Rankings 2023: Top Global Universities. 2022). While Ukrainian universities are not yet highly ranked in global rankings, the number of national higher education institutions participating in international assessments is increasing. It is also worth noting that Ukrainian students frequently participate in international student contests and frequently emerge victorious.

Like the public administration sector, the realm of higher education in Ukraine currently faces several pressing issues requiring prompt solutions. These issues include enhancing the quality of education to facilitate the development of contemporary skills, enabling adaptable transitions in training areas and credentials to align with the changing demands of the labor market, modernizing the educational process using digital technologies and global educational trends, elevating the level of academic research, and more actively promoting the internationalization of university activities, including participating in adult education. The prospects for addressing these issues have markedly diminished due to the full-scale war initiated by Russia, which has caused substantial damage to the higher education system of Ukraine. In fact, the ongoing war presents considerable challenges to the higher education system in Ukraine. These challenges include the destruction of educational infrastructure, the appropriation of educational facilities for military purposes, the disruption of training activities during hostilities, the exposure of all participants in the educational process to life-threatening risks, and the forced relocation of higher education institutions, faculty, and students to alternative territories. The Russian military aggression that began in 2014 and escalated into a hybrid war over the course of eight years culminated in a full-scale war in 2022. This protracted conflict caused considerable damage and losses to the economy and social infrastructure, resulting in profound changes to the higher education landscape.

The war has necessitated higher education institutions adapting their activities to cope with new challenges and conditions. To maintain the educational process, the Ministry of Education and Science of Ukraine and higher education institutions have transformed the organizational forms and methods of higher education in military operations. These transformations include various measures such as enhancing the autonomy of higher education institutions in organizing the educational process, widely using digital technologies in the educational process to ensure distance learning, improve the qualifications of the teaching staff in the field of digital skills, and develop distance courses, providing organizational and legal support for the transfer of higher education institutions from the occupied and front-line territories to safer regions, supporting forced national and international academic mobility of students, as well as facilitating enrollment in foreign universities, ensuring special support to residents of temporarily occupied territories to continue their studies or enroll in Ukrainian institutions of higher education, developing research activities of universities, including those related to solving problems of crisis situations and defense needs, and strengthening contacts and expanding partnerships with foreign universities and colleges in educational

and scientific activities, using various forms of international cooperation to preserve the educational institution and solve its problems (Institute of Educational Analytics, 2022).

Simultaneously, the ongoing war has accelerated educational transformations that are paving the way for new directions in developing higher education in Ukraine. These transformations include enhancing the flexibility and adaptability of higher education institutions, extensive integration of information technologies into the educational process, incentivizing the advancement of university science, promoting international collaboration, consolidating and integrating higher education institutions, and expanding the financial independence of universities. Such efforts are anticipated to facilitate the effective integration of higher education in Ukraine into the European area of higher education, thus enabling post-war development.

Presently, higher education in Ukraine requires a reinforcement of protection measures against military attacks and destruction. According to Milton, Elkahlout, and Barakat (2021), who analyzed international experience, the primary areas of protection encompass curtailing the military usage of university facilities, increasing university autonomy to safeguard higher education against politicization and ideological manipulation, physical defense measures such as blast-proof walls, shatter-resistant glass, and surveillance cameras, supporting the mobility of displaced students, scientists, and universities to exit conflict zones, offering alternative forms of distance higher education, and university conflict readiness, which involves training for handling attacks, devising evacuation strategies, and sharing information during crises. Most of these approaches are already implemented in Ukraine. However, the experience of organizing training during the ongoing war has revealed the necessity for comprehensive measures related not only directly to educational institutions but also to the protection of infrastructure in general. As there are high risks of massive rocket attacks, protecting energy and utility infrastructure is paramount, given that power outages and lack of internet access impede universities from organizing training remotely.

CONCLUSION: LESSONS LEARNED AND RECOMMENDATIONS

Preparing the next generation of public administration scholars and practitioners to understand their role and humble position in the new architecture of relationships necessary to collaboratively confront a climate change world. For this, several things must occur:

Universities, and Public Affairs programs inside them, are key pieces of a country's local infrastructure. Pre event conditions where these hubs of knowledge, organization, creation, and dissemination are robust and engaged horizontally and vertically into the fiber of society provide for a resilient source of expertise in post event conditions. The activities necessary for this cannot wait to be implemented when disasters strike. As providers of local expertise and knowledge they must internally converge disciplines and knowledges to organize effectively to tackle current wicked problems, especially in the face of extreme operating conditions and transboundary crisis. Externally, universities mut innovate in the way they engage with multiple publics and stakeholders towards more resilient landscapes in and around them. The Ivory tower model must be substituted by a more pluralistic, issue-driven collaborative partnership and governance framework. This enhances the process of knowledge sharing and co production that has been associated in the literature to shorter recovery and reconstruction processes. The case study discussed in this article provides a context of what to do and avoid in these transboundary crisis contexts.

1. Going beyond Frederickson's 4 pillars of public administration (economy, efficiency, efficacy, and equity) to embrace the 21st century tenets of community resilience: justice, sustainability, empathy, and cultural awareness.
2. A better understanding of the role of science (scientific management) in future processes of resilience building across sectors, perspectives, disciplines, levels of government and the importance of the co creation of new knowledge necessary to effectively govern our uncertainty. The unquestionable cult to STEM needs to stop. What were considered "soft" skills in the past are now the key to socio technical/socio ecological transitions not only of our vulnerable populations but also our most valued public and private organizations and institutions, including our universities.

3. Becoming observers of the observer, holding our currently resilient institutions of the status quo, to the litmus test of community resilience, public health, and wellness, just sustainability and Food-Energy-Water Security. Our students must become designers, architects of governance systems and public spaces and landscapes to sustain the demands of co creation of sustainable futures.

In essence, Public Affairs education **needs** to embrace a post normal governance of uncertainty brought by Transboundary wicked problems. This area has consistently failed to confront remaining inside the comforts of managerialism.

ENDNOTE

1. Source: World Bank

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