

Contributions to Economics

The series *Contributions to Economics* provides an outlet for innovative research in all areas of economics. Books published in the series are primarily monographs and multiple author works that present new research results on a clearly defined topic, but contributed volumes and conference proceedings are also considered. All books are published in print and ebook and disseminated and promoted globally. The series and the volumes published in it are indexed by Scopus and ISI (selected volumes).

Giuseppe T. Cirella
Editor

Handbook on Post-War Reconstruction and Development Economics of Ukraine

Catalyzing Progress



Springer

Editor

Giuseppe T. Cirella
Faculty of Economics
University of Gdansk
Sopot, Poland

ISSN 1431-1933

ISSN 2197-7178 (electronic)

Contributions to Economics

ISBN 978-3-031-48734-7

ISBN 978-3-031-48735-4 (eBook)

<https://doi.org/10.1007/978-3-031-48735-4>

© The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature Switzerland AG 2024

This work is subject to copyright. All rights are solely and exclusively licensed by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors, and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Printed on acid-free paper

Жертвам цієї війни

Foreword

I have had the pleasure of collaborating with Prof. Dr. Giuseppe Cirella since our initial meeting in 2019 at the 7th International Conference on Modeling, Development, and Strategic Management of Economic Systems in Ivano-Frankivsk. Our collaboration has spanned various projects, conferences, and published works over the years. With the onset of the COVID-19 pandemic, the idea for this book began to take shape. Working alongside Prof. Cirella as the editor has been a rewarding experience, especially as our focus shifted from developmental economics to post-war reconstruction due to the outbreak of full-scale war on February 22, 2022. In retrospect, it is worth highlighting that Ukraine's economic progress has encountered significant hurdles, largely stemming from its volatile political landscape, which has been particularly turbulent since 2014. The military actions have had adverse effects on business activities. Moreover, during the years 2020–2021, there was a substantial reduction in the number of businesses, a consequence of the COVID-19 pandemic and the enforcement of stringent nationwide quarantine measures. Adding to these challenges is an ineffective fiscal system, where elevated tax rates hinder both economic growth and the long-term viability of businesses. A significant segment of Ukraine's economy operates informally, obstructing the development of an efficient social security system at various levels of government. Furthermore, an imperfect legal framework fails to create an environment conducive to entrepreneurial activity and broader economic development.

Economically speaking, when the Russian Federation launched a full-scale military assault on Ukraine, the Ukrainian economy suffered a significant blow, losing nearly one-third of its income. Aside from the harrowing human losses and suffering, the ongoing conflict also inflicts severe damage on Ukraine's infrastructure, with estimated losses reaching USD 500 billion. The European Investment Bank projects that approximately EUR 1 trillion will be necessary for compensation and recovery efforts. Consequently, it is paramount to prioritize the formulation of strategies that promote economic growth in Ukraine and facilitate an investment-friendly environment. This approach is vital for the country's reconstruction and its role as an essential member of the European community. To enhance economic

efficiency, several critical issues require attention. First and foremost, there is a pressing need to explore collaborative mechanisms between the government and businesses to devise effective strategies for promoting economic development and bolstering social security. Additionally, it is vital to develop competitive advantages for domestic producers and establish frameworks that encourage the growth of high-value-added enterprises, facilitating a transition from solely a resource-based to a high-tech economy. In addition, the assurance of political stability will not only boost investment attractiveness but also raise a sense of much needed calmness within the country, benefiting both its citizens and the broader region. Lastly, it is vital to formulate approaches for the advancement of the green economy, by interlinking humanity and nature while achieving a balance between the three pillars of sustainability: ecological, social, and economic dimensions. Taking a comprehensive approach to addressing these issues will substantially improve Ukraine's economic landscape, particularly as it looks toward post-war development.

In recent years, Ukraine has made substantial strides in its commitment to achieving the United Nations Sustainable Development Goals. These advancements were evident through the ratification of numerous international legal agreements, the implementation of robust civil society tools, and the initiation of constructive dialogues between the government and the business sectors. However, certain challenges related to economic and social security have persisted, impeding progress toward achieving lasting environmental change. Considering how economic systems adapt to external influences and societal demands, it becomes clear that the three pillars of sustainability assume a fundamental role in guiding decision-making at different levels of public, national, and local governance. Generally speaking, the interaction between businesses and government assumes a crucial role in shaping a country's sustainable development trajectory, impacting both economic prosperity and the evolution of civil society. This cooperative effort becomes a significant undertaking in ensuring the enduring advancement of regions and the reconfiguration of socioeconomic and socio-political dynamics. These factors hold particular significance for Ukraine as it grapples with the challenges of the post-war era.

In the aftermath of the war, Ukraine will need to undertake various adaptations to expedite its reconstruction efforts. Notably, as the largest country in Europe, Ukraine possesses abundant natural resources and fertile soils, establishing it as a significant contributor to the global export market for metals, natural gas, coal, and other valuable commodities. Additionally, Ukraine's substantial intellectual potential has facilitated the development of high-value-added industries like mechanical engineering and aerospace. The country has also evolved into a prominent IT hub, driven by its youthful talent pool and a competitive wage structure compared to the United States and the European Union. Furthermore, Ukraine has established itself as a formidable agricultural powerhouse, ranking prominently in global production and export of essential commodities like sugar beets, sunflowers, sunflower oil, and grains. Recent statistics highlight the substantial capacity of Ukrainian agricultural land, capable of feeding an impressive 400 million people worldwide each year. Ukraine's strategic geopolitical location and well-placed transportation

infrastructure also makes it a hub for trade between Europe and Asia, accessible via both land routes and seaports. It is worth noting that while challenges persist, including insufficient road coverage in many parts of the country, significant progress was achieved in 2020 through the national “Large Construction” project, which led to the renovation and repair of 6556 km of roads. Ongoing plans have been well-laid out for further construction and road upgrades once the reconstruction process begins.

Moreover, there is considerable attention on reforming Ukraine’s public administration system, a challenge that has become even more pronounced during wartime. A key emphasis is placed on actively helping the quality and accessibility of administrative services for residents in all parts of the country, whether they reside in urban, peri-urban, or rural areas. The integration of digital processes has gained widespread adoption at the state level, with notable innovations such as the “Action” smartphone application. This app streamlines various tasks, including the use of electronic documents, residence registration, tax payments for entrepreneurs, issuance of certificates, monitoring of enforcement procedures, among others. This user-friendly application empowers every Ukrainian to access these services with a simple “click,” a stark contrast to the lengthy timelines that were once required for these tasks. The “Action” app represents a key component of the national “State in a Smartphone” program, advancing Ukraine’s digital transformation efforts and ensuring that its citizens remain informed and connected to state services, even in the midst of ongoing military hostilities.

Relatedly, to achieve a balanced development approach in Ukraine, it is essential to integrate urban and rural areas under a unified framework. This approach is being pursued through the decentralization reform, which has transferred various administrative powers, including financial powers, from the central government to local authorities. These transformative changes have enabled a more efficient and transparent allocation of financial resources, ultimately with the goal of addressing socioeconomic development challenges within different regions. As an example, Ukraine possesses substantial potential in terms of regional tourism and recreation. A significant advantage lies in its temperate climate, appealing to a diverse range of tourists, including those with specific health needs, notably those with cardiovascular and respiratory conditions. The country boasts a well-established network of sanatorium treatment centers with a history spanning over a century, ensuring the delivery of high-quality medical and recreational services. Noteworthy recreational areas endowed with natural healing waters and therapeutic mud sources include Truskavets (Lviv region), Myrhorod (Poltava region), Kuyalnyk (Odessa region), Berezovsky mineral waters (Kharkiv region), and others. Additionally, Ukraine’s proximity to the Black and Azov Seas provides options for beach tourism, while for winter enthusiasts, the country offers several ski resorts in the picturesque Ukrainian Carpathians, including well-known places like Bukovel, Dragobrat, Slavske, Yaremche, and more. Ukraine’s strong ties to its national traditions and rich historical heritage provide fertile ground for ethnographic and cultural tourism. Vast green areas and access to water bodies also boost the development of green, eco-friendly,

agricultural, and rural tourism, offering a wide range of options for regional tourism facilitated by the recent decentralization processes.

With all of these considerations in mind, I, along with my fellow countrymen, eagerly anticipate the end of the war and the commencement of the post-war reconstruction period. The collaborative effort in putting together the “Handbook on Post-War Reconstruction and Development Economics of Ukraine: Catalyzing Progress,” with Prof. Cirella serving as the editor, has been a rewarding experience. I am profoundly thankful for his unwavering commitment and diligent efforts in ensuring the book’s relevance, transitioning it from developmental economics to the critical scope of post-war reconstruction. As my country draws nearer to the end of the conflict and anticipates the start of a new chapter in its history, Ukrainians are eager to begin the path of recovery. We look forward to embracing both the challenges and opportunities that come with post-war era, all with the common objective of shaping a future characterized by peace and prosperity across all sectors.

Department of Tourism and Hospitality,
O.M. Beketov National University of
Urban Economy in Kharkiv, Kharkiv,
Ukraine

Olena Uhodnikova

Preface

Uncovering Ukraine: A Personal Account from the Editor

The first time I heard of Ukraine was probably during the legendary Serhiy Bubka's pole vault competitions, notably because he was representing Ukraine and not the USSR. The second notable instance was most likely during the Orange Revolution, which unfolded from late November 2004 to January 2005, as I followed it on the news. In 2012, I had the opportunity to make my first visit to Ukraine when I received an invitation to spend a month in Kyiv, where I assisted a colleague at the Institute of Surface Chemistry, part of the National Academy of Sciences of Ukraine. At the time, I had recently completed a postdoc at the Department of Environmental Sciences, Informatics, and Statistics at Ca' Foscari University of Venice, Venice, Italy, and had conceived the idea of launching my research center, i.e., the Polo Center of Sustainability, with a focus on Eastern European development projects. A few years later, in 2014, I temporarily relocated to Odessa and made multiple trips to Chisinau, Moldova, fostering connections and work-related initiatives between the two countries. At the time, I observed the firsthand Euromaidan protests in Ukraine, the removal of President Viktor Yanukovich from power, the annexation of Crimea, and the emergence of a Russian-backed separatist movement in the Donbas region. A little over a year later, I assumed a professorship role in the Department of Regional Policy and Political Geography at Saint Petersburg State University in Saint Petersburg, Russia. In that same year, I had the opportunity to independently travel to Crimea to observe and assess, i.e., after French and Italian delegations, the situation a year after its annexation. In 2018, I relocated to the University of Gdansk in Sopot, Poland, where I began collaborating with several academics across Ukraine. Since then, I authored and published several articles focusing on Ukrainian gas and health-related issues. I also had the privilege of being a keynote speaker at various Ukrainian university conferences and held professorship positions within the country, notably at Odessa's International Humanitarian University. Over the past decade, I have observed significant transformations in Ukraine from a

Western and Eastern European perspective leading up to the full-scale invasion by the Russian Federation on February 24, 2022.

How This Book Got Started: From Concept to Completion

The latter half of 2019 was an exceptionally dynamic period. In September, I completed my professorship in Odessa. In October, I had the opportunity to gather with several colleagues in Ivano-Frankivsk, where numerous connections were made that laid the groundwork for the inception of this book. Additionally, in November, I was preparing to commence another professorship in Beijing, which was scheduled to last for several months. However, my plans (along with the rest of the world) took an unexpected turn as the COVID-19 outbreak emerged in China in December. This unforeseen event prompted me to cut short my stay and make a challenging departure from Shanghai on December 23, 2019. Upon resuming my academic responsibilities in Poland, I also returned to Odessa for a brief visit in late February 2020, where additional ideas were developed, and the book began to take shape in the wake of the COVID-19 pandemic declared on March 11, 2020, by the World Health Organization.

With an extensive network of contacts across Ukraine, the idea for the book crystallized into a comprehensive collection of works, focusing on various facets of Ukraine's development economics and what critical steps could be made to help the country in next decade or so. The book originally encompassed six distinct parts: national security, economic growth, tourism and hospitality management, public marketing strategies, territorial infrastructure, and urban development. Originally titled "Handbook on the Development Economics of Ukraine: Tackling Poverty," the initial proposal consisted of 28 chapters. However, as the project evolved, it expanded to include 36 chapters, with a confirmed delivery date to the "Contributions to Economics" book series set for April 15, 2022.

In preparation for this delivery, and after more than two years of work, in December 2021, I returned to Ukraine with the intent of dedicating a few final months to the book's completion. Much of the work had already been completed by early February 2022, and I maintained regular communication with Mr. Niko Chtouris, an Editor within Springer's Economics, Political Science, and Public Administration section, to keep him updated on the progress, with an anticipated delivery (a month earlier) in March. Unfortunately, as rumors of a potential Russian attack intensified, and with family as well as colleagues from Poland, including the Dean of my faculty, strongly advising my departure from the country, I made the decision to leave Ukraine and return to Poland on February 7, 2022. Seventeen days later, the invasion commenced, and the book swiftly transformed into (somewhat of) a historical document.

The projected efforts related to Ukraine's development economics had to be put on hold. Moreover, given the country's wartime circumstances, a substantial portion of the content centered on the COVID-19 pandemic and its consequences had lost relevance and significance. Ukraine's foremost concern underwent a significant

transformation, evolving into the safeguarding of its territorial integrity. In the early days of the full-scale invasion, the looming questions were about which parts of the country Russia would seize and how long the conflict would endure. These questions remain uncertain to this day. I reached out to Mr. Chtouris to communicate that I would not be able to submit the book by the originally agreed-upon delivery date. I waited a few weeks before also informing my Ukrainian colleagues, who were directly affected by the ongoing conflict, on March 4, 2022, about the need for a one-year extension to reevaluate the book's content. In fact, I had hoped that the war would come to an end, allowing for potential revisions sooner. Unfortunately, as the conflict has continued to unfold, the original material has lost much of its applicability in terms of Ukraine's future progress and development.

In the summer of 2023, a year and a half into the ongoing conflict, with no clear end in sight, but with tangible insights into the life during wartime, a decision was made to refocus the whole book. It was determined that all the chapters needed to be rewritten within the context of post-war reconstruction. The revised aim of the book would be to provide guidance for Ukraine's recovery and reconstruction once the war has concluded, outlining potential starting points for rebuilding and forging a new beginning for the country. To gain a deeper understanding of the revisions made, an excerpt from the original book's description submitted to Springer in 2021 provides readers with the direction and structure of the book's origins. As you will observe, as early as 2019, many of my Ukrainian colleagues expressed concerns regarding Ukraine's relationship with the European Union (EU) and how Russia would factor into the country's future trajectory. It reads:

In 2020, Ukraine held the unfortunate distinction of being the poorest country in Europe according to the Atlas method, with a per capita gross national income of just USD 3,540. It is worth noting that Ukraine's economic history is marked by significant change. While it once boasted the second-largest economy within the Soviet Union, the collapse of the USSR posed substantial challenges for Ukraine's transition into a market-based economy. This transition, or lack thereof, resulted in widespread poverty among its population. Ukraine continues to grapple with a set of persistent challenges that contribute to its ongoing poverty, including issues such as government corruption, Russian interference, and inadequate infrastructure. The book's highlights explore innovative approaches to overcome these obstacles and underscore thought-provoking and well-reasoned perspectives in terms of development economics. The book's inception raises several compelling questions that shed light on the timely issue of why poverty persists in Ukraine and what lessons from history can enlighten us. How did Ukraine become the poorest country in Europe? What are the key objectives to raise its affluence levels? Why does national security play such a strong role in Ukraine's development and economic growth? What are the key strategies for Ukraine's short- and long-term economic development success? Can tourism and hospitality play a major role in turning around Ukraine's economy? Do public marketing activities influence the way Ukrainians foresee their country's economic advancement? Is key territorial infrastructure and urban environmental progress connected and, if so, what elements of Ukraine's advancement is associated with them? Does international aid help Ukraine? What are the steps to best normalize its economy, particularly in a political sense between the EU and Russia, to break the poverty gap? This book provides answers to these questions and offers a distinct and unique look at Ukraine through the lexicon of the European continent and pieces together possible solutions via policy and programs. It draws comparisons to other neighboring countries in Eastern Europe and fills in the research gap pertaining to Ukraine as a potential transformative emerging economy. Ukraine, in this sense, shows signs of its economic complexity and an evolutionary resolve toward how its citizens view their country

and its future. An overriding tone of the book incorporates a sustainable development and pro-environmental outlook and strives to authoritatively illustrate how development economics in Ukraine can improve if corrective steps are taken into account. Solutions are provided and current and future generations are considered.

—description of the original proposal sent to Springer, 2021

This book has undoubtedly evolved from its original proposal, and I am profoundly grateful to my Ukrainian colleagues for the opportunity to collaborate with them. Through our ongoing communication, I consistently convey my well-wishes for the safety and wellbeing of their families and friends. Currently, this book offers pertinent insights. The revised work provides a comprehensive examination of developmental options, structured into five parts, alongside numerous scholarly perspectives and case-based research studies. The book sheds light on the driving forces of development economics, encompassing economic dynamics, causative factors, and real-world applications that influence policy and programs. It addresses the multifaceted requirements for enhancing fiscal, economic, and social aspects, taking into account security dimensions, educational reforms, working conditions, domestic and international policies, and market conditions. By employing both traditional and innovative analytical tools, it dissects the intricate relationship between macroeconomic and microeconomic factors in the context of Ukraine's post-war challenges, aiming to chart a path toward domestic and international economic growth. Key themes explored encompass development data, statistical capacity building, research and knowledge creation, national indicators, and impact evaluation, serving as valuable resources for shaping development policy, alleviating poverty, and fostering prosperity. However, the handbook lacks in-depth exploration of political content, directing interested readers to other notable works that specifically delve into the political elements of the war, including Barakat (2023) "Russia's Approach to Post-Conflict Reconstruction: The History, Context, and its Effect on Ukraine" (ISBN 978-3031345210), Farhadi et al. (2023) "The Great Power Competition Volume 5: The Russian Invasion of Ukraine and Implications for the Central Region" (ISBN 978-3-031-40450-4), Goldgeier and Shiffrinson (2023) "Evaluating NATO Enlargement: From Cold War Victory to the Russia-Ukraine War" (ISBN 978-3-031-23363-0), Vicente et al. (2023) "Russia's War on Ukraine: The Implications for the Global Nuclear Order" (ISBN 978-3-031-32221-1), and Welfens (2022) "Russia's Invasion of Ukraine: Economic Challenges, Embargo Issues and a New Global Economic Order" (ISBN 978-3-031-19137-4).

Synopsis of the Book

This comprehensive handbook offers authoritative insights into the post-war reconstruction and development economics of Ukraine. This book is a 4-year effort, with all chapters reworked due to the full-scale Russian invasion in late February 2022. Beyond my contribution, 133 authors from Ukraine, holding positions as academicians in their respective Ukrainian higher educational institutions, serve as professors or associate professors. The book comprises 28 chapters, mirroring the original count, and is organized into five parts: (1) strengthening national security

through technology and governance, (2) strategies for sustainable economic development, (3) advancing tourism development and the hospitality sector, (4) marketing and communication for territory development, and (5) urban transformation and infrastructure advancements. As you can discern, these parts retain strong parallels with the original proposal. Each part of the book commences with two photographs that showcase examples of the central theme within the country.

Part I of the book provides an extensive examination of Ukraine's post-war national security efforts (PI.1), offering valuable insights into the critical dimensions of safeguarding the nation (PI.2). These chapters cover topics such as public governance strategies, the utilization of information and communication technology (ICT) systems, and the conceptual framework for regulating national security in the digital age. Additionally, an integrated methodological framework is explored, focusing on the role of ICT in environmental protection within the context of Ukraine's national security.

In Part II, the book takes a closer look at various aspects of Ukraine's strategies for sustainable economic development in the aftermath of war. These chapters cover a wide array of topics, including the standardization of business management with a strong focus on sustainable domestic production (PII.1), the modeling of adaptive management systems customized for manufacturing enterprises, the strengthening of state regulation in the realm of information and communication to address complex socioeconomic issues, an extensive examination of the historical roles and positioning of insurance companies in Ukraine's post-war economic landscape, an evaluation of technological advancements within Ukraine's processing industry, strategies for enhancing competitiveness management in post-war industrial enterprises (PII.2), an exploration of the intricate relationship between corporate sustainability and financial performance within a post-conflict context, and a comprehensive study of Ukraine's potential for sustainable development amid the ongoing challenges of conflict and reconstruction efforts.

In Part III of the book, the focus shifts to case research and the advancement of Ukraine's tourism development and the hospitality sector (PIII.1). These chapters investigate contemporary trends and spatial planning of hotel complexes, offering insights into managing uniqueness, addressing challenges, and fostering post-war development within Ukraine's dynamic tourism landscape (PIII.2). In addition, this part of the book explores the resilience of tourism development in Ukraine, highlighting the challenges it faces while seeking to enhance competitiveness. Sustainable tourism development is also a key theme, with a particular emphasis on finding a balance among environmental, social, and economic dimensions. Moreover, sustainable ecotourism development is assessed in a post-war context, examining how it integrates public marketing, community engagement, and environmental stewardship to promote responsible and sustainable tourism practices.

In Part IV, the book explores the ideas surrounding marketing and communication strategies for territorial development in post-conflict Ukraine. These chapters offer a comprehensive overview of adaptive marketing strategies tailored for post-conflict reconstruction, regional development, and sustainable growth. Additionally, readers will gain insights into the dynamics of marketing strategies and communication specific to territorial development within the post-conflict period. Likewise,

the intersection of territorial development, spatial planning, and marketing is examined, offering a multidisciplinary analysis of how to move forward after the war (PIV.1). Lastly, emphasis is put on the importance of strategic communication and public marketing in shaping territory positioning in the country, encompassing aspects such as media engagement, resource utilization, and image formation (PIV.2).

Finally, Part V of the book concentrates on urban transformation and infrastructure advancements within Ukraine's post-war landscape. These chapters review a variety of critical topics, including the improvement of urban solid waste management through the integration of geographic information systems and multicriteria decision analysis, with a detailed case study highlighting post-war reconstruction efforts (PV.1). Additionally, statistical modeling is employed to forecast pipeline reliability in heating networks as well as a look at the evolution of urban spaces, analyzing architectural and functional transformations within railway station complexes during Ukraine's post-war recovery (PV.2). Furthermore, the role of information technology in driving innovation within the country's construction sector during its post-war period is explored. The book also addresses architectural software trends, bridging the gap between education and practice, and offers insights into optimizing urban and social planning structures in medium-sized cities, drawing lessons from the experience of Uzhhorod for post-war reconstruction across Ukraine. Lastly, the importance of standardization and modernization is explored, proposing advancements in a national cadastral system and advocating for sustainable and resilient cities through functional zoning and form-based codes in urban development.

The "Handbook on Post-War Reconstruction and Development Economics of Ukraine: Catalyzing Progress" serves as an indispensable reference, not only for Ukraine's future but also for researchers and policy analysts focused on Eastern European economies. It offers valuable insights into the transformation of war-torn countries into more prosperous ones. The book's back matter features a poignant visual representation of the devastating impact on Ukraine's infrastructure, titled "War through the Lens: A Visual Chronicle of Damaged and Destroyed Territory and Infrastructure in Ukraine," comprising a collection of 50 photographs illustrating the extensive destruction caused by ongoing Russian shelling throughout the country (see Appendix). All of these photographs, which are in no particular order, fall under the Creative Commons Public Domain license and require proper attribution to the source. To aid readers, a comprehensive glossary is included to provide context for the terms used in the book. In all, I extend my deep gratitude to the team at Springer and the "Contributions to Economics" book series for their patience and expertise throughout this project. I fervently advocate for an end to the war and eagerly await the day when peace is restored to the European continent. This work has been guided by prayer and reflection, with inspiration drawn from my Lord and Savior, Jesus Christ: "*For God hath not given vs the spirit of fear, but the power, of love, and a sound mind*" (2 Timothy 1:7).

Faculty of Economics, University of Gdansk,
Sopot, Poland
January 10, 2024

Giuseppe T. Cirella

Contents

Part I Strengthening National Security Through Technology and Governance	
1 Public Governance of the National Security of Ukraine	3
Olena Uhodnikova, Mykhailo Peresyphkin, Giuseppe T. Cirella, Dmytro Prunencko, Serhii Sliusarenko, and Oleksii Piddubnyi	
2 Utilizing Information and Communication Technology Systems for the Formation of National Security	15
Gevorkyan A. Yuriyovich, Olesia Solodovnik, Giuseppe T. Cirella, Ivan Parubchak, Oleksandr Dorofyeyev, and Andrii Nosyk	
3 Conceptual Framework of Ukraine’s National Security: Regulatory Examination Using Information and Communication Technologies	31
Yurii Lysetskyi, Yurii Semenyuk, Giuseppe T. Cirella, Dmytro Pavlenko, Gevorkyan A. Yuriyovich, and Oleh Demydkin	
4 An Integrated Methodological Framework for Advancing Information and Communication Technology in Environmental Protection Within the Context of Ukraine’s National Security	47
Gevorkyan A. Yuriyovich, Oksana Nosyk, Giuseppe T. Cirella, Oleksii Diachenko, Roman Olientiev, Mariia Tsedik, and Tetiana V. Yarmak	
Part II Strategies for Sustainable Economic Development	
5 Standardizing Business Management by Greening Domestic Production	65
Nataliia Kondratenko, Ludmila Kovalenko, Giuseppe T. Cirella, Olena Plakhotnik, Militsa Volkova, and Alina Shved	

6	Modeling a System of Adaptive Management of Manufacturing Enterprises in Ukraine: Political, Economic, Socio-cultural, and Technological Analysis	85
	Nataliia Kondratenko, Ludmila Kovalenko, Giuseppe T. Cirella, Hanna Doroshenko, Svetlana Babych, and Tetiana Artiukh	
7	Advancing State Regulation of Information and Communication: A Framework for Managing the Complex Socioeconomic System in Ukraine	103
	Dmitriy Babych, Iryna Ternova, Giuseppe T. Cirella, Larysa Tiesheva, Ganna Zadnieprovskva, and Maryna Maksimova	
8	Insurance Companies and Territorial Positioning in Ukraine’s Post-war Economic Development: A Comprehensive Historical Analysis, 2015–2019	121
	Olha Kryvytska, Olga Kneysler, Giuseppe T. Cirella, Nataliia Spasiv, Svitlana Korol, and Anna Novoseletska	
9	Challenges and Perspectives in Assessing Technological Development: A Focus on Ukraine’s Processing Industry	137
	Volodymyr Rodchenko, Ganna Rekun, Giuseppe T. Cirella, Nataliia Teterych, Yuliia Prus, and Alla Lebedyn	
10	Enhancing Competitiveness Management in Ukraine’s Post-war Industrial Enterprises: Theoretical Insights and Strategic Implications	159
	Victoriia Tretyak, Hanna Zaporozhets, Giuseppe T. Cirella, Marharyta Kucher, Iryna Popova, and Yuliia Kurylenko	
11	Examining the Link Between Corporate Sustainability and Financial Performance: An Empirical Study with Implications for Post-Conflict Ukraine	177
	Nataliia Krasnokutska, Hanna Koptieva, Giuseppe T. Cirella, and Olena Kruhlova	
12	Ukraine’s Potential for Sustainable Development: Exploring Global Implications Amidst Conflict and Reconstruction	195
	Olena Uhodnikova, Roman Oleksenko, Giuseppe T. Cirella, Oksana Marchenko, and Maryna Azhazha	
Part III Advancing Tourism Development and the Hospitality Sector		
13	Modern Trends and Spatial Planning of Hotel Complexes: Navigating Uniqueness, Challenges, and Post-War Development in Ukraine’s Tourism Landscape	213
	Olena Uhodnikova, Volodymyr Zhyhlo, Giuseppe T. Cirella, Nataliia Vlashchenko, Lyudmila Karpenko, and Natalia Moroz	

14 Tourism Development and Resilience in Ukraine: Challenges and Enhancing Competitiveness 231
 Larysa V. Obolentseva, Anton A. Ryabev, Giuseppe T. Cirella,
 Valerii V. Abramov, Mariia M. Pokolodna, and Olga M. Kravets

15 Sustainable Tourism Development and Strategies in Ukraine: Balancing Environmental, Social, and Economic Dimensions 251
 Iuliia Krasnokutska, Iryna Andrenko, Giuseppe T. Cirella,
 Olha Radionova, Denys Shapovalenko, Lyudmyla Kraynyuk,
 Oksana Kharchenko, Oleg Kolontaievskiyi, Nataliia Bogdan,
 Svitlana Aleksandrova, Iryna Balandina, and Anna Sokolenko

16 Sustainable Ecotourism Development: Integrating Public Marketing, Community Engagement, and Environmental Stewardship in Ukraine 271
 Viktoriya Svitlichna, Maksym Tonkoshkur, Giuseppe T. Cirella,
 Liudmyla Radionova, Mykola Yatsiuk, and Olena Uhodnikova

Part IV Marketing and Communication for Territory Development

17 Adaptive Marketing Strategies for Post-Conflict Reconstruction, Regional Development, and Sustainable Growth in Ukraine 295
 Valentyna Prasol, Viktoriya Velichko, Giuseppe T. Cirella,
 Olena Konoplina, Iuliia Mizik, and Liudmyla Novoskoltseva

18 Marketing Strategies and Communication Dynamics for Territorial Development in Post-Conflict Ukraine 313
 Iryna Balandina, Serhii Pohasii, Giuseppe T. Cirella,
 Olena Uhodnikova, Nataliia Vlashchenko, and Olga Sokolova

19 Intersecting Territorial Development, Spatial Planning, and Marketing: A Multidisciplinary Exploration of Post-Conflict Ukraine 331
 Oleksandr Zavalniy, Denis Vishnevsky, Giuseppe T. Cirella,
 Olena Uhodnikova, Hennadii Kholodnyi, and Sergii Gordiienko

20 Strategic Communication and Public Marketing for Territory Positioning in Ukraine: Media Engagement, Resource Utilization, and Image Formation 353
 Olena Uhodnikova, Roman Oleksenko, Giuseppe T. Cirella,
 Oleg Kravets, Iryna Verkhovod, Halyna Matviienko, Yurii Hurbyk,
 Tetiana Shchetinina, and Olena Kravets

Part V Urban Transformation and Infrastructure Advancements

- 21 Enhancing Urban Solid Waste Management Through an Integrated Geographic Information System and Multicriteria Decision Analysis: A Case Study in Postwar Reconstruction** 377
Igor Dudar, Olha Yavorovska, Giuseppe T. Cirella, Volodymyr Buha, Maryna Kuznetsova, Iuliia Iarmolenko, Olexander Svitlychnyy, Liliia Pankova, and Svitlana Diachenko
- 22 Statistical Modeling for Forecasting Pipeline Reliability: Postwar Reconstruction Strategies for Heating Networks in Ukraine** 393
Olga Maliavina, Viktoria Hrankina, Giuseppe T. Cirella, Oleksandr Khrenov, Viktoria Milanko, and Anna Yuzbashyan
- 23 Urban Evolution: Analyzing Architectural and Functional Transformations in Railway Station Complexes for Postwar Reconstruction in Ukraine** 409
Iryna Dreval, Shvets Liudmyla, Iryna Ustinova, Giuseppe T. Cirella, Galina Osychenko, and Larisa Bohdanova
- 24 Innovation in Ukraine’s Construction and Postwar Recovery: The Transformative Power of Information Technology** 431
Anna Zhyhlo, Roman Tkachenko, Giuseppe T. Cirella, Nataliia Morkovska, Oleh Yakymenko, and Kostiantyn Viatkin
- 25 Architectural Software Trends: Bridging Education and Practice to Build Ukraine’s Future** 455
Svitlana Shkliar, Nazar Bozhynskyi, Giuseppe T. Cirella, Natalia Silvestrova, Vladislav Koshel, and Nataliia Malik
- 26 Optimizing Urban and Social Planning Structures in Medium-Sized Cities: Lessons from Uzhhorod for Postwar Reconstruction in Ukraine** 481
Yolana Golyk, Vasyl Rizak, Giuseppe T. Cirella, Iryna Kutsyna, Nadiia Kis, and Mykhailo Nesukh
- 27 Toward Standardization and Modernization: Advancing a Cadastral System in Ukraine** 505
Serhii Nesterenko, Kostiantyn Viatkin, Giuseppe T. Cirella, Vitaliy Holovachov, Yulia Radzinska, Olexsii Voronkov, and Oleksandr Afanasyev
- 28 Building Sustainable and Resilient Cities in Ukraine: Functional Zoning and Form-Based Codes in Urban Development** 527
Maryna Kolosha and Giuseppe T. Cirella

Appendix War Through the Lens: Visual Chronicle of Damaged and Destroyed Territory and Infrastructure in Ukraine	555
Glossary	583
References	591
Index	597

Editor and Contributors

About the Editor



Giuseppe T. Cirella , Professor of Human Geography, works at the Faculty of Economics, University of Gdansk, Sopot, Poland, where he received a Doctor of Habilitation (Dr. Hab.) in Economics and Finance. He specializes in economic development, environmental social science, and sustainability. His interdisciplinary background also includes socio-political research throughout Eastern Europe, Africa, and China. After completing a Doctor of Philosophy (Ph. D.) at Griffith University, Australia, within the Centre for Infrastructure Engineering and Management, developing a sustainability-based index, he founded the Polo Center of Sustainability in Italy. Notably, he has held professorships and scientific positions at the University of Pretoria, South Africa; Saint Petersburg State University, Russia; Inner Mongolia University of Science and Technology, China; Life University, Cambodia; and Free University of Bozen, Italy. In his early career, he worked with the Canadian International Development Agency in Indonesia as well as with Radarsat International in Brazil. He is also on the editorial board of a number of internationally renowned academic peer-reviewed journals.

Contributors

Valerii V. Abramov Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Oleksandr Afanasyev Department of Land Administration and Geoinformation Systems, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Svitlana Aleksandrova Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Iryna Andrenko Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Tetiana Artiukh Department of Management and Economics of Pharmacy, Institute for Advanced Training of Pharmacy Specialists, National University of Pharmacy, Kharkiv, Ukraine

Maryna Azhazha Department of Organizational Management and Project Management, Zaporizhzhia National University, Zaporozhye, Ukraine

Dmitriy Babych Department of Economics and Management, V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

Svetlana Babych Department of Economics and Management, V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

Iryna Balandina Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Nataliia Bogdan Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Larisa Bohdanova Department of Fundamentals of Architectural Design, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Nazar Bozhynskyi Department of Urban Planning, Kharkiv National University of Construction and Architecture, Kharkiv, Ukraine

Volodymyr Buha Department of Law, Donetsk State University of Internal Affairs, Dnipro, Ukraine

Giuseppe T. Cirella Faculty of Economics, University of Gdansk, Sopot, Poland

Oleh Demydkin Department of Public Administration, Poltava State Agrarian Academy, Poltava, Ukraine

Oleksii Diachenko Department of Accounting and Taxation, Odessa State Agrarian University, Odessa, Ukraine

Svitlana Diachenko Department of Economic Policy and Governance, National Academy for Public Administration under the President of Ukraine, Kyiv, Ukraine

Oleksandr Dorofeyev Department of Public Management and Administration, Poltava State Agrarian Academy, Poltava, Ukraine

Hanna Doroshenko Department of Economics and Management, V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

Iryna Dreval Department of Urban Planning, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Igor Dudar Department of Technical Sciences, Vinnytsia National Technical University, Vinnytsia, Ukraine

Yolana Golyk Department of Urban Construction and Economy, Uzhhorod National University, Uzhhorod, Ukraine

Sergii Gordiienko Department of Urban Construction, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Vitaliy Holovachov Department of Land Administration and Geoinformation Systems, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Viktoria Hrankina Department of Energy Efficient Engineering Systems, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Yurii Hurbyk Department of Economics and Hotel and Restaurant Business, Bogdan Khmelnytsky Melitopol State Pedagogical University, Melitopol, Ukraine

Iuliia Iarmolenko Faculty of Law and Linguistics, Bila Tserkva National Agrarian University, Bila Tserkva, Ukraine

Lyudmila Karpenko Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Oksana Kharchenko Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Hennadii Kholodnyi Department of Marketing, Simon Kuznets Kharkiv National University of Economics, Kharkiv, Ukraine

Oleksandr Khrenov Department of Energy Efficient Engineering Systems, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Nadiia Kis Department of Urban Construction and Economy, Uzhhorod National University, Uzhhorod, Ukraine

Olga Kneysler Department of Financial Management and Insurance, West Ukrainian National University, Ternopil, Ukraine

Oleg Kolontaievskiy Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Maryna Kolosha Department of Urban Construction, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Nataliia Kondratenko Department of Management and Public Administration, O. M. Beketov National University of Municipal Economy in Kharkiv, Kharkiv, Ukraine

Olena Konoplina Department of Financial and Economic Security, Accounting, and Auditing, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Hanna Koptieva Department of Management, National Technical University Kharkiv Polytechnic Institute, Kharkiv, Ukraine

Svitlana Korol Department of Finance, Ivano-Frankivsk National Technical University of Oil and Gas, Ivano-Frankivsk, Ukraine

Vladislav Koshel Department of Architecture of Buildings and Structures and Architectural Environmental Design, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Ludmila Kovalenko Department of Higher Mathematics, O. M. Beketov National University of Municipal Economy in Kharkiv, Kharkiv, Ukraine

Iuliia Krasnokutska Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Nataliia Krasnokutska Department of Management, National Technical University Kharkiv Polytechnic Institute, Kharkiv, Ukraine

Oleg Kravets Department of Economics, Hotel and Restaurant Business, Bohdan Khmel'nitsky Melitopol State Pedagogical University, Melitopol, Ukraine

Olena Kravets Department of Foreign Languages, Dmytro Motornyi Tavria State Agrotechnological University, Melitopol, Ukraine

Olga M. Kravets Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Lyudmyla Kraynyuk Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Olena Kruhlova Department of Economics and Business, Kharkiv State Biotechnological University, Kharkiv, Ukraine

Olha Kryvytska Department of Finance, Accounting and Auditing, National University of Ostroh Academy, Ostroh, Ukraine

Marharyta Kucher Department of Management of Organization and Administration, Dniprovsk State Technical University, Kamianske, Ukraine

Yuliia Kurylenko Department of Organization and Economics of Pharmacy, National University of Pharmacy, Kharkiv, Ukraine

Iryna Kutsyna Department of Urban Construction and Economy, Uzhhorod National University, Uzhhorod, Ukraine

Maryna Kuznetsova Department of Legal Sciences, Sumy National Agrarian University, Sumy, Ukraine

Alla Lebedyn Department of Organization and Economics of Pharmacy, National University of Pharmacy, Kharkiv, Ukraine

Shvets Liudmyla Department of Fundamentals of Architectural Design, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Yurii Lysetskyi Research & Development Department, Subsidiary “SNT Ukraine”, Kyiv, Ukraine

Maryna Maksimova Department of Economics and Management, V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

Olga Maliavina Department of Energy Efficient Engineering Systems, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Nataliia Malik Department of Architecture of Buildings and Structures and Architectural Environmental Design, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Oksana Marchenko Department of Economics and Hotel and Restaurant Business, Bohdan Khmelnytsky Melitopol State Pedagogical University, Melitopol, Ukraine

Halyna Matviienko Department of Finance and Accounting, V.I. Vernadsky Taurida National University, Kyiv, Ukraine

Viktorii Milanko Department of Oil and Gas Engineering and Technology, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Iuliia Mizik Department of Financial and Economic Security, Accounting, and Auditing, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Nataliia Morkovska Department of Urban Planning, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Natalia Moroz Department of Urban Construction, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Serhii Nesterenko Department of Land Administration and Geoinformation Systems, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Mykhailo Nesukh Department of Urban Construction and Economy, Uzhhorod National University, Uzhhorod, Ukraine

Andrii Nosyk Department of Multimedia Information Technologies and Systems, National Technical University Kharkiv Polytechnic Institute, Kharkiv, Ukraine

Oksana Nosyk Department of Political Science and Philosophy, Kharkiv Regional Institute of Public Administration of the National Academy of Public Administration, Kharkiv, Ukraine

Anna Novoseletska Department of Economic Theory, Management, and Marketing, National University of Ostroh Academy, Ostroh, Ukraine

Liudmyla Novoskoltseva Department of Political Science and Law, Luhansk Taras Shevchenko National University, Starobilsk, Ukraine

Larysa V. Obolentseva Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Roman Oleksenko Department Public Administration and Law, Dmytro Motornyi Tavria State Agrotechnological University, Melitopol, Ukraine

Roman Olentiev Department of Human Resources, Kharkiv Regional Institute of Public Administration of the National Academy of Public Administration under the President of Ukraine, Kharkiv, Ukraine

Galina Osychenko Department of Architecture of Buildings and Structures and Architectural Environment Design, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Liliia Pankova Department of Civil and Commercial Law, National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine

Ivan Parubchak Department of Public Administration, Stepan Gzhytskyi National University of Veterinary Medicine and Biotechnologies, Lviv, Ukraine

Dmytro Pavlenko Research & Development Department, Subsidiary “SNT Ukraine”, Kyiv, Ukraine

Mykhailo Peresyppkin Department of Financial and Economy Security, Accounting, and Auditing, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Oleksii Pidubnyi Department of Civil and Economic Law, National University of Bioresources and Nature Management of Ukraine, Kyiv, Ukraine

Olena Plakhotnik Department of Economics and Industry Engineering, Dniprovsk State Technical University, Kamianske, Ukraine

Serhii Pohasii Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Mariia M. Pokolodna Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Iryna Popova Department of Organization and Economics of Pharmacy, National University of Pharmacy, Kharkiv, Ukraine

Valentyna Prasol Department of Entrepreneurship and Business Administration, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Dmytro Prunenکو Department of Transport System and Logistic, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Yuliia Prus Department of Management and Administration, V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

Liudmyla Radionova Department of Philosophy and Political Science, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Olha Radionova Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Yulia Radzinska Department of Land Administration and Geoinformation Systems, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Ganna Reکun Department of Management and Administration, V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

Vasyl Rizak Department of Urban Construction and Economy, Uzhhorod National University, Uzhhorod, Ukraine

Volodymyr Rodchenko Faculty of Business, Kauno Kolegija Higher Education Institution, Kaunas, Lithuania

Anton A. Ryabev Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Yurii Semenyuk Research & Development Department, Subsidiary “SNT Ukraine”, Kyiv, Ukraine

Denys Shapovalenko Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Tetiana Shchetinina Department of Public Management and Administration, Poltava State Agrarian Academy, Poltava, Ukraine

Svitlana Shkliar Department of Architecture of Buildings and Structures and Architectural Environmental Design, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Alina Shved Department of Management and Public Administration, O. M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Natalia Silvestrova Department of Architecture of Buildings and Structures and Architectural Environmental Design, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Serhii Sliusarenko Department of Administrative and Financial Law, National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine

Anna Sokolenko Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Olga Sokolova Department of Economics of the Enterprise, University of the State Fiscal Service of Ukraine, Irpin, Kyiv Region, Ukraine

Olesia Solodovnik Department of Finance and Credit, Kharkiv National University of Civil Engineering and Architecture, Kharkiv, Ukraine

Nataliia Spasiv Department of Financial Management and Insurance, West Ukrainian National University, Ternopil, Ukraine

Viktoriya Svitlichna Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Olexander Svitlychnyy Department of Civil and Commercial Law, National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine

Iryna Ternova Department of Economics and Management, V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

Nataliia Teterych Department of Organization and Economics of Pharmacy, National University of Pharmacy, Kharkiv, Ukraine

Larysa Tiesheva Department of Economics and Management, V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

Roman Tkachenko Department of Urban Planning, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Maksym Tonkoshkur Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Victoriia Tretyak Department of Management and Administration, Karazin Business School, V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

Mariia Tsedik Department of Language Training and Communication in Public Administration, National Academy for Public Administration under the President of Ukraine, Kyiv, Ukraine

Olena Uhodnikova Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Iryna Ustinova Department of Architecture, National University of Construction and Architecture in Kyiv, Kyiv, Ukraine

Viktoriya Velichko Department of Entrepreneurship and Business Administration, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Iryna Verkhovod Department of Economics, Hotel and Restaurant Business, Bohdan Khmelnytsky Melitopol State Pedagogical University, Melitopol, Ukraine

Kostiantyn Viatkin Department of Urban Planning, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Denis Vishnevsky Department of Urban Construction, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Nataliia Vlashchenko Department of Tourism and Hospitality, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Militsa Volkova Department of Management and Public Administration, O. M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Oleksii Voronkov Department of Land Administration and Geoinformation Systems, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Oleh Yakymenko Department of Urban Planning, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Tetiana V. Yarmak Department of Philosophy and Pedagogy of Professional Training, Kharkiv National Automobile and Highway University, Kharkiv, Ukraine

Mykola Yatsiuk Department of Economics, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Olha Yavorovska Department of Technical Sciences, Vinnytsia National Technical University, Vinnytsia, Ukraine

Gevorkyan A. Yuriyovich Department of International Business and Finance, National Technical University Kharkiv Polytechnic Institute, Kharkiv, Ukraine

Anna Yuzbashyan Department of Energy Efficient Engineering Systems, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Ganna Zadnieprovskia Department of Economics and Management, V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

Hanna Zaporozhets Department of Management and Public Administration, O. M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Oleksandr Zavalniy Department of Urban Construction, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Anna Zhyhlo Department of Urban Planning, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

Volodymyr Zhyhlo Department of History and Culturology, O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine

List of Abbreviations

AHP	analytic hierarchy process
AR	augmented reality
BC	Bronze Class
BIM	building information modeling
BWM	best-worst method
CAD	computer-aided design
CIP	Competitive Industrial Performance Index
CIS	Commonwealth of Independent States
CR	concentration ratio
CSR	corporate social responsibility
DEM	digital elevation model
DP	drift potential
ESG	environmental, social, and corporate governance
EU	European Union
FBC	form-based codes
FBCI	Form-Based Codes Institute
FBCs	food and beverage companies
FC	financial condition
FDI	foreign direct investment
GC	goods competitiveness
GC	Gold Class
GDP	gross domestic product
GHG	greenhouse gas
GIS	geographic information system
GRP	gross regional product
GVA	gross value added
HHI	Herfindahl-Hirschman Index
HVAC	heating, ventilation, and air conditioning
ICT	information communication and technology
ISO	International Organization for Standardization

IT	information technology
LADM	Land Administration Domain Model
MCDA	multicriteria decision analysis
MR	mixed reality
MVA	manufacturing value added
NATO	North Atlantic Treaty Organization
NSDS	National Sustainable Development Strategy
NPM	net profit margin
OECD	Organization for Economic Cooperation and Development
PE	production efficiency
PEST	political, economic, socio-cultural, and technological analysis
RSCs	railway station complexes
ROE	return on equity
SC	Silver Class
SDGs	United Nations Sustainable Development Goals
SM	sales management efficiency
SMEs	small and medium-sized enterprises
SYM	yearbook members
TIES	The International Ecotourism Society
UNIDO	United Nations Industrial Development Organization
UNWTO	United Nations World Tourism Organization
VR	virtual reality