RESILIENT AND SUSTAINABLE FUTURE: ESG IN HIGHER EDUCATION

Monograph

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INTRODUCTION

Why should you read this monograph? Because, first and foremost, it explores the role of universities during wartime. The Russian aggression against Ukraine began in 2014, marked by the illegal annexation of territories, including the Autonomous Republic of Crimea. On February 24, 2022, the Russian Federation launched a full-scale invasion of Ukraine, bringing terror, destruction, and death. This brutal war has already claimed the lives of over 10 000 civilians killed by the Russian Federation. More than 6 million Ukrainians are refugees. Despite these unimaginable hardships, Ukrainian higher education institutions continue to stand resilient, striving against all odds to prevent the brain drain of students and academics. This monograph is a testament to their strength and determination.

This monograph highlights the dedication of faculty, students and support staff who continued their work despite rocket attacks, damaged buildings and power cuts. They remained committed to providing education, advancing research and supporting their communities in challenging and unpredictable conditions.

Second, this monograph is about hope – a hope for post-war recovery and the rebuilding of a nation that will rely on the skilled professionals educated during this troubled time. It reflects a vision of a future in which those who studied in the universities that bravely kept their doors open will be equipped to help rebuild the country. These institutions, many of which resumed face-to-face teaching where possible, provided students not only with academic knowledge, but also with the resilience and adaptability needed to face future challenges.

Finally, this monograph reflects how Ukrainian universities, even under the most challenging circumstances, are striving to work with a vision of the Sustainable Development Goals, adopting best international practices and, most importantly, creating unique approaches to sustainability. These

practices are designed to help them prevail in the face of this devastating, unprovoked war waged by the Russian Federation against Ukraine.

The monograph is divided into four parts. The first part provides an in-depth exploration of the concept of sustainability and ESG (Environmental, Social, and Governance) principles. A particular focus is placed on the Sustainable Development Goals (SDGs), examining how these goals are being promoted by leading universities around the world, as well as by institutions in the Czech Republic and Ukraine. The analysis is based on data from the Times Higher Education University Impact Rankings and highlights key achievements and areas of progress.

The following sections focus on the practices of Ukrainian universities. These sections showcase unique efforts to maintain education and research activities while addressing environmental, social and governance responsibilities, demonstrating resilience and commitment to sustainable development despite the most challenging of circumstances – an ongoing war that has lasted for more than two and a half years.

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Martina Rašticová, Nataliia Versal, Nataliia Tkalenko
December, 2024

PART 1.
THEORETICAL FRAMEWORK

Chapter 1.
Key concepts of resilience and ESG principles within the context of higher education

Martina Rašticová[1], Nataliia Versal[2], Nataliia Tkalenko[3], and Mariia Balytska[4]

Introduction

Nowadays, finding anyone who has not heard of ESG and SDGs is hard. Typically, these concepts are associated with businesses and large corporations, which is understandable given that their initial implementation was focused on the corporate environment. However, the importance of these concepts extends far beyond the business world. Increasing attention is now being paid to the contribution of higher education institutions (HEIs) to achieving Sustainable Development Goals (SDGs) and to considering HEIs through the lens of Environmental, Social, and Governance (ESG) principles. HEIs play a key role in shaping new generations who will not only understand sustainable development principles but also actively implement them

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in their future endeavors. Therefore, their impact on achieving the SDGs and aligning with ESG principles is increasingly vital in today's world.

ESG Principles

The term "ESG" first came into use within the finance industry, primarily focusing on business investors. It was introduced in the "Who Cares Wins: Connecting Financial Markets to a Changing World" report in December 2004. This report was a collaborative project spearheaded by former UN Secretary-General Kofi Annan, the Swiss Government, the International Finance Corporation (IFC), and twenty financial institutions across nine countries. These institutions formulated guidelines and recommendations for more effectively incorporating ESG issues into asset management, securities brokerage, and related research functions (Table 1.1, Box 1) (World Bank, 2004).

Table 1.1. ESG issues relevant to investment decisions

Environmental issues	Social issues	Corporate governance issues
– Climate change and related risks – The need to reduce toxic releases and waste – New regulation expanding the boundaries of environmental liability with regard to products and services – Increasing pressure by civil society to improve performance, transparency and accountability, leading to reputational risks if not managed properly – Emerging markets for environmental services and environment-friendly products	– Workplace health and safety – Community relations – Human rights issues at company and suppliers'/contractors' premises – Government and community relations in the context of operations in developing countries – Increasing pressure by civil society to improve performance, transparency and accountability, leading to reputational risks if not managed properly	– Board structure and accountability – Accounting and disclosure practices – Audit committee structure and independence of auditors – Executive compensation – Management of corruption and bribery issues

Source: World Bank, 2004

Box 1:

ESG principles are actually based on the Global Compact, which was launched in 2000 at the initiative of United Nations Secretary-General Kofi Annan. This initiative brought together companies, UN agencies, labor organizations, and civil society to support ten principles:

- **"Human Rights:**
  - Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights within their sphere of influence;
  - Principle 2: Make sure that they are not complicit in human rights abuses.
- **Labour:**
  - Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
  - Principle 4: The elimination of all forms of forced and compulsory labour;
  - Principle 5: The effective abolition of child labour;
  - Principle 6: Eliminate discrimination in respect of employment and occupation.
- **Environment**
  - Principle 7: Businesses should support a precautionary approach to environmental challenges;
  - Principle 8: Undertake initiatives to promote greater environmental responsibility;
  - Principle 9: Encourage the development and diffusion of environmentally friendly technologies.
- **Anti-Corruption:**
  - Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery (The Secretary-General introduced this principle at the Global Compact Leaders Summit on 24 June 2004)".

Source: World Bank, 2004, p. IX

In 2005, the release of the "Freshfields Report" by the United Nations Environmental Programme Finance Initiative (UNEP-FI, 2005) represented a significant milestone in the broader acceptance and implementation of ESG criteria within the financial sector. This report provided a legal framework for integrating ESG considerations into institutional investments and was crucial in offering the first substantial evidence of the financial relevance of ESG factors (Delgado-Ceballos et al., 2023).

So, the rise of ESG was driven by increasing awareness of companies' and institutions' impact on the environment and society. Growing concerns over climate change, social inequalities, and corporate governance scandals highlighted the need for a more sustainable and ethical approach to business and investment.

Today, ESG has become a mainstream concept, not only in the corporate world but also in HEIs, governments, and non-profits. Many organizations now view ESG as a compliance requirement and a strategic imperative that can drive long-term value and resilience.

However, there is also considerable criticism of ESG principles today, as "Sadly those three letters have morphed shorthand for hype and controversy" (The Economist, 2022). Adhering to these principles can be very costly and does not always result in direct benefits for companies, which can push engaging in greenwashing – "Symbolic information emanating from an organization without substantive action" (Walker & Wan, 2012, p. 231). Despite these drawbacks, the concept of ESG principles remains groundbreaking. It is important to recognize that there should not be a rush to comply with them simply to gain the favor of stakeholders. Because detecting greenwashing will have a reverse effect–consumers boycott companies that do not adhere to their promised commitments. According to a survey among UK consumers, when asked, "If you thought a company was not living up to their sustainable claims, how would you react?" 48 % of respondents answered, "I would buy their product/service as little as possible" (Lauchlan & Roberts, 2020, p. 2). Additionally, respondents indicated that they would not recommend the products of such companies to their friends, even if they like those products (Lauchlan & Roberts, 2020, p. 3). Thus, greenwashing harms the brand and leads to declining consumer loyalty.

Sustainable Development Goals

Today, we also use another acronym in this context – SDGs. A decade later, in September 2015 at the UN Sustainable Development Summit in New York, the United Nations introduced an updated approach to the Millennium Development Goals (MDGs) that were established in 2000 and primarily focused on developing countries (Box 2). SDGs were created in response to the complex and interconnected challenges facing the world, including poverty, inequality, climate change, environmental degradation, peace, and justice. All countries are invited to join the 2030 Agenda for Sustainable Development, which establishes 17 goals. SDGs were developed through an inclusive process that involved governments, civil society, and other stakeholders globally. This broad participation ensured that the goals accurately reflect the needs and aspirations of people worldwide.

Box 2:
Overview of the Millennium Development Goals
Established: 2000

Purpose: To address various global challenges through a series of targeted objectives aimed primarily at developing countries.

Goals:

1. Eradicate Extreme Poverty and Hunger
2. Achieve Universal Primary Education
3. Promote Gender Equality and Empower Women
4. Reduce Child Mortality
5. Improve Maternal Health
6. Combat HIV/AIDS, Malaria, and Other Diseases
7. Ensure Environmental Sustainability
8. Develop a Global Partnership for Development

Legacy: The MDGs laid the groundwork for the SDGs, which expanded the agenda to include a broader range of objectives and a global scope.

Source: United Nations, 2015

Progress towards SDGs is monitored through a set of indicators. The United Nations publishes regular reports to assess the world's progress in achieving these goals and to identify areas requiring increased effort. In summary, SDGs were designed to provide a comprehensive framework that integrates the social, economic, and environmental dimensions of sustainable development.

ESG/SDGs Correspondence

This brief overview helps us understand that the acronyms ESG and SDGs are related. There is currently considerable debate about the correspondence and interrelationship between them. SDGs encompass both macro and micro levels, but how they are implemented and their impact can vary significantly depending on the context. At the macro level, SDGs address global issues such as climate change, poverty, inequality, peace, and justice. These goals require extensive coordination and interaction at the national, regional, and global levels, involving governments, international organizations, and major corporations to change policies and create structures that support a sustainable future. At the same time, despite the global scale of SDGs, many goals can be implemented at the local level or even at the level of individual organizations and individuals. For example, schools and universities can integrate education for sustainable development into their curricula, and businesses can implement policies that reduce their environmental footprint and support local communities.

Thus, while the SDGs' overall framework is at the macro level, their implementation and impact are vividly manifested at the micro level, where every individual, community, or organization can contribute.

In turn, ESG principles are indeed more often associated with the micro level, especially in the context of individual organizations or companies. For example, environmental initiatives include measures to reduce an organization's impact on the environment, such as emissions reduction, waste management, water and energy conservation, and using renewable energy sources. Social aspects focus on the company's relationships with its employees, suppliers, customers, and local communities. This includes ensuring fair working conditions, supporting communities, and promoting equality and diversity. Governance relates to the company's management and includes

aspects such as transparency in decision-making, combating corruption, ethical leadership, and ensuring the healthy functioning of corporate bodies.

ESG, unlike SDGs, is more focused on how organizations can implement sustainable practices that positively impact their operations, social environment, and management. Although ESG is more related to the micro level, actions at this level also contribute to the achievement of global sustainable development goals through the integration of sustainable practices into the economy and society. For example, SDG 5: Gender Equality. Accordingly, achieving this goal at the university level means adhering to the S – Social principle by promoting gender balance among students, introducing gender studies and researching gender issues. In turn, the G – Governance principle at the university level means involving women in leadership positions. The broad context of ESG and SDGs correspondence is presented in Figure 1.1.

Fig. 1.1. Correspondence between ESG principles and SDGs

Source: Berenberg, 2018

Development of ESG/SDGs Correspondence Approach in HEIs

Higher education institutions have a crucial role in promoting and implementing ESG principles and achieving SDGs. This monograph will focus on three critically different areas: teaching and curriculum development, research and innovation, and sustainable campus and institutional practices (Fig. 1.2), driven by the recognition that universities and colleges are central to shaping future leaders and advancing societal goals.

Fig. 1.2. Integrating ESG and SDGs across critical areas of HEI operations: teaching, research, and campus practices

Teaching and Curricula Development

Development and implementation of ***ESG/SDGs Programmes*** dedicated entirely to ESG and SDGs themes, which aim to foster a deep understanding of sustainability issues across various sectors (Box 3).

Box 3:

MASUDEM

The MASUDEM project stands as an example of integrating sustainable development into education, demonstrating how strategic collaboration can drive meaningful change across regions. "Master Studies in Sustainable Development and Management" is a project that unites ten universities from Europe and Southeast Asia in a concerted effort

to enhance educational and administrative capacities while fostering sustainable economic practices (MASUDEM, 2023). This initiative is designed to create Master's programs and concentrations focused on sustainable development and management, tailored to the needs of Thailand and Indonesia.

The project involves a diverse consortium of universities, each contributing its unique expertise to enrich the curriculum. European universities like the University of Economics in Bratislava (Slovakia), Pablo de Olavide University (Spain), Eötvös Loránd University (Hungary), and Mendel University in Brno (the Czech Republic), bring a knowledge in sustainability, economics, and management. These institutions are known for their strong focus on innovative research and international collaborations, which play a crucial role in shaping the educational programs under MASUDEM.

On the Southeast Asian side, universities like the National Institute of Development Administration (NIDA), Srinakharinwirot University, Naresuan University in Thailand, Universitas Trisakti, Universitas Gadjah Mada, and Universitas Islam Indonesia, all contribute to the project by integrating sustainable practices into their curricula and research initiatives. These institutions are particularly focused on addressing regional challenges related to sustainable development, which makes their involvement in MASUDEM critical for ensuring that the programs are both locally relevant and globally informed.

A key component of the MASUDEM project is the development of 13 new courses, specifically designed to address the contemporary needs of Indonesia and Thailand in the realm of sustainable business and economic development. These courses cover a broad spectrum of topics, including sustainable leadership, environmental impact assessment, corporate social responsibility, and technology management for sustainability. The courses are designed to align with the United Nations Sustainable Development Goals, ensuring that they promote a holistic approach to sustainability.

The development of these courses was a collaborative effort involving academic staff from the European and Southeast Asian partner universities.

This collaboration ensured that the courses are enriched by the diverse expertise of the participating institutions and are well-suited to address the specific sustainability challenges faced by Southeast Asia. The content was also informed by an analysis of leading global and European Master's programs in sustainable management, ensuring that the courses meet high academic standards and are relevant in both global and local contexts.

To support the implementation of these courses, the project also included a comprehensive training program for academic and administrative staff from the participating Southeast Asian universities. This training was conducted in two main formats: a 5-day mobility program where staff from Asian universities traveled to the European partner universities and a 30-hour online and onsite training conducted directly at the Southeast Asian universities. The training covered innovative teaching methods, principles of sustainable development, and advanced administrative practices, ensuring that the staff are well-equipped to manage and deliver the new programs effectively.

One of the distinguishing features of MASUDEM is its emphasis on collaboration and shared learning. Representatives from various Asian universities were invited to European partner institutions, fostering an environment of collaboration and exchanging ideas. This approach enhanced the educational programs' quality and strengthened international cooperation, which is essential for addressing global sustainability challenges. The project also placed a strong focus on continuous improvement. Feedback from the training participants, along with input from internal and external reviewers, was systematically incorporated into the development and refinement of the courses. This iterative process ensures that the educational materials remain relevant, effective, and aligned with the evolving needs of both regions.

The MASUDEM project is a powerful example of how international collaboration can effectively integrate sustainable development into higher education. By bringing together diverse expertise from ten universities across Europe and Southeast Asia, the project has not only

created high-quality educational programs but has also fostered a network of institutions dedicated to promoting sustainability. The project's comprehensive approach, from course development to staff training, ensures that the programs will have a lasting impact, equipping graduates with the knowledge and skills needed to address the pressing sustainability challenges of our time.

Source: MASUDEM, 2023

The introduction of standalone ***courses focused explicitly on ESG and SDGs*** topics is needed to provide detailed insights and educational opportunities centered around global sustainability challenges.

For example, at the V. N. Karazin Kharkiv National University, the course "Management in Conditions of Sustainable Development" explores a broad range of themes crucial for integrating sustainability into business practices. Key topics include an introduction to sustainable development in business, ecological challenges and opportunities, business models for sustainable development, corporate social responsibility (CSR), and strategic management of sustainable development. Additional subjects cover the management of environmental and social risks, corporate governance of sustainable development, financial tools and investments for sustainable business, innovations for sustainable development in business, marketing and consumer behavior in sustainability contexts, measurement and reporting of sustainable development, collaboration between business and governmental or non-governmental organizations, and ethics and leadership in sustainable business management. Each theme is designed to provide students with comprehensive insights into the implementation of sustainable practices that align with global sustainability goals (SEI "Karazin Business School", 2024).

At the Taras Shevchenko National University of Kyiv (TSNUK), the Educational-professional Program for bachelor's degrees in "Trade, Logistics and Ecological Entrepreneurship" integrates a strong focus on environmental sustainability through a series of specialized courses. These courses are designed to equip students with the knowledge and skills necessary to drive eco-friendly initiatives in various business sectors. Courses within this program include "Foundations of the Green Economy", which examines the

characteristics of the eco-economic system, the principles of sustainable development, the formation of a model of sustainable consumption and environmentally responsible business; “Ecological Marketing”, where students learn to promote environmentally sustainable products and services; and “Ecological Entrepreneurship”, which focuses on starting and managing businesses that make a positive contribution to the environment. To deepen the environmental focus, the program offers “Environmental Auditing and Controlling” and “Environmental Accounting, Taxation and Reporting”, which provide skills in monitoring and managing environmental compliance; “Product Management in Ecological Entrepreneurship”, which teaches product life cycle management under sustainability protocols; and “Ecological Management”, which covers strategic oversight of a company's environmental strategies. In addition, “Training in Green Development Strategy for Enterprises” plays a crucial role in the curriculum, focusing on the specifics of green development in enterprises. This training addresses the creation of green development strategies as active business programs and provides students with methodological foundations for diagnosing business activities in terms of environmental protection and resource use. It equips them with the necessary tools to assess green development opportunities. The course also covers environmental auditing and the analysis of business activities in environmental protection and natural resource management, ensuring that students can effectively contribute to and lead sustainability initiatives in their future workplaces. This hands-on approach to training enables students to apply theoretical knowledge to practical situations, fostering a deep understanding of sustainable business practices and strategies (TSNUK, 2024a).

At the Educational and Rehabilitation Institution of Higher Education “Kamianets-Podilskyi State Institute”, master's students in the Educational and Professional Program “Economics And Social Psychology” study the course “Inclusive Economy”. This course covers various topics including the essence of the inclusive economy and the specifics of its definition (sustainable development paradigm, inclusive growth concept, goals of inclusive development in the EU, inclusive development index); conceptual aspects of inclusive economy development (poverty as a socio-economic phenomenon, concept of inclusive strategic innovative development

of a region); organizational-economic mechanisms for developing an inclusive economy; modeling the development of an inclusive economy; characteristics of forming the structure of institutional sectors of Ukraine's economy aimed at inclusive development; restructuring of the industrial sector in the context of inclusivity: challenges, objectives, and policy principles; overcoming regional structural inertia as a precondition for inclusive development; technological changes: impact on the economic structure and the level of inclusivity of its development (features of ensuring inclusive technological development in Ukraine through a gender lens, formation of a technological ecosystem in Ukraine); directions of state structural policy in Ukraine to achieve inclusive development goals (KPDI, 2024).

Integration of ***ESG and SDGs-related topics into existing courses*** across different disciplines, ensuring that all students receive a well-rounded education that includes awareness of sustainability issues.

Within the Educational and Scientific Program "Management of Organizations and Administration" at the Taras Shevchenko National University of Kyiv, master's students are offered the course "Current Issues in Economic Theory and Economic Policy". This course covers the topic "Theoretical Understanding of Eco-economic Issues, the Concept of Sustainable Development, and Ecological Problems in Ukraine". It provides students with an in-depth examination of contemporary ecology-economic challenges, integrating theoretical frameworks with the practical realities of Ukraine's environmental issues (TSNUK, 2024b).

For the master's students in the Educational and Professional Program "Public Management and Administration" at the Educational and Rehabilitation Institution of Higher Education "Kamianets-Podilskyi State Institute", a "Municipal Management" course is offered. This course includes the topic "The Use of Innovative Technologies in Various Sectors of Local Economy. Information Technologies in Municipal Management", which explores the application of energy-saving technologies and the main requirements of the European Union regarding energy efficiency (KPDI, 2024).

Incorporating case studies and practical learning to enhance learning and enable students to engage directly with ESG and SDGs challenges and solutions in practical settings. So, for instance, as part of

the "UniCities" project, a summer school was organized for students to address the restoration of the Chernihiv Polytechnic National University campus following the destruction caused by missile attacks. The students developed solutions aligned with SDGs and ESG principles. Six projects were presented: "EcoVance – A New Type of Shelter", "M&H – Mental Health Zone in Front of the Dormitory", "BarHaus – VertiGreen", "Seventeen – Designing a Passive, Partially Autonomous Dormitory", "Green Future – Eco Area in Front of the 1st Campus Building at CPNU", and "A1 – Redevelopment Dormitory". Importantly, even amidst the war, it is possible to implement solutions based on sustainable practices, and it is crucial for students to be involved in these processes. A unique aspect of this summer school was its location at the "smart shelter" of the G.I. Denysenko Scientific and Technical Library of the Igor Sikorsky Kyiv Polytechnic Institute (Voloschuk, 2024).

Establishment of ***interdisciplinary programs with ESG/SDGs focus*** that merge insights from various fields, fostering an integrated understanding of how different disciplines contribute to achieving sustainability goals. The "Circular Economy" program for Master students at Mendel University in Brno, Czech Republic, emphasizes practical strategies for evaluating, planning, managing, and controlling circular economy processes within businesses and service sectors. It caters to the growing need for ESG reporting and prepares graduates with the skills to develop sustainable business practices and make informed decisions. This interdisciplinary program is tailored to meet the complex challenges of sustainable development. This program includes disciplines across various domains, enhancing its comprehensive approach to sustainable development. These domains encompass: Environmental and Resource Management (Bioeconomy, Circular Financing, Ecosystem Services, Environmentalistics, Alternative Energy Sources, Energy Plants and Biomass Utilization); Agriculture and Sustainable Practices (Principles of Farming System, Smart Farming and Sustainable Agriculture, Forest Production, Processing of Local Food Sources, Urban Farming); Business and Economics (Business Economics, Economics of Wood Commercialization and Wood Products, Managerial Accounting, Enterprise Internationalization Process, Business ICT Management); Project and Leadership Development (Project Management,

Sustainable Leadership), Technology and Innovation (Decision Support Systems, Wood and Wood-based Materials); Media and Social Studies (Promotion and Media, Social Analysis). Each course within the program is strategically designed to integrate sustainability principles with practical skills and theoretical knowledge. The comprehensive curriculum ensures that graduates are well-prepared to implement and lead sustainable practices across various sectors, making significant contributions to the global circular economy (MENDELU, 2024).

Research and Innovation

Through their research and innovation efforts, HEIs have a key role in pursuing sustainability, effectively implementing ESG principles, and achieving the SDGs. These institutions should be centers of innovation, where new ideas are born and tested. The focus on research and innovation covers two key areas: sustainability research and the creation of innovation hubs and incubators focusing on implementing ESG principles or achieving SDGs.

First, higher education institutions conduct ***targeted research on sustainability*** to address pressing sustainability issues. Recognizing the complex and interconnected nature of global challenges, universities promote *interdisciplinary collaboration*. By bringing together experts from diverse fields such as environmental sciences, economics, technology and social sciences, these collaborations aim to create holistic and robust solutions to sustainability challenges.

Statistics indicate that developed countries place greater emphasis on scientific investment compared to developing countries. Since 2010, Korea has maintained its leadership, with its Gross domestic expenditure on research and development (R&D) – GERD at 3.3 % of GDP in 2010, according to OECD data, rising to 5.2 % of GDP in 2022. In the same year, the United States allocated 3.6 % of GDP to R&D. The average GERD as a percentage of GDP ratio in the EU in 2022 is 2.1 %, with the highest indicator in Sweden (3.4 %), and the lowest – in Romania (0.46 %). Notably, in 2022, the R&D intensity in the Czech Republic is 1.96 %, indicating a promising potential for growth (OECD, 2024).

In 2021, more than half (57.7 %) of total R&D expenditure in the EU was financed by business enterprises. The government funded nearly a third

(30.3 %), while 9.7 % came from foreign sources. The higher education sector provided a relatively small share of funding (1.2 %) (Eurostat, 2024).

In absolute terms, total gross domestic expenditure on R&D in the EU in 2022 was EUR 363 billion, or EUR 813 per inhabitant. Compared to 2021, R&D expenditure per inhabitant in the EU increased by almost 10 %; compared to 2012, the increase was 51.3 % (Eurostat, 2024). These figures align with the strategy outlined in the official document "Political guidelines for the next European Commission 2024-2029", which places "research and innovation at the heart of … economy" to boost the EU's competitiveness (Von der Leyen, 2024, p.10). This idea "will be part of a broader Strategy for European Life Sciences" to support EU countries' green and digital transitions (Von der Leyen, 2024, p.11). It aims to increase investment through new public-private partnerships and improve their efficiency through greater collaboration between research, academia, and business (Von der Leyen, 2024). These steps are expected to increase the EU's resilience and prosperity by providing "green and digital solutions in line with the sustainable development goals" (Eurostat, 2024).

In Ukraine, the GERD as a percentage of GDP ratio was 0.33 % in 2022, with the highest level being reached in 2010 with 0.75 % of GDP. Although gross domestic expenditure on R&D in 2023 increased by 24.7 % in absolute terms compared to 2022, GERD as a percentage of GDP remained at the same level of 0.33 % (Ukrstat, 2024). According to the announced data, the Ukrainian state budget of 2024 will allocate 20 % more to scientific research than in 2023 (Ministry of Finance of Ukraine, 2023).

Funding from government organizations is the primary source of R&D funding in Ukraine. In 2022, this source accounted for 66.6 % of the total R&D expenditure, but in 2023 it decreased to 43.1 % (Ukrstat, 2024). Ukraine has a legal requirement for budget funding for scientific and technical activities to be no less than 1.7 % of GDP (according to Article 48 of the Law of Ukraine "On Scientific and Technical Activities") (Verkhovna Rada of Ukraine, 2024). However, this standard has never been met since the law was passed in 2015. As a result of this underfunding, research has been concentrated in research institutes (e.g. the National Academy of Sciences of Ukraine), while universities have focused more on educational activities. This has led to limited scientific development, insufficient

research, and a lack of opportunities for talented scientists to carry out their projects in Ukraine.

Ukrainian universities have only recently started actively integrating scientific work into their activities, establishing research units, involving students in research projects, and strengthening cooperation with international partners. Nevertheless, the share of funding from higher education sector organizations in total R&D expenditure remains critically low, not exceeding 0.1 % for several consecutive years. At the same time, a significant share of total R&D expenditure is consistently covered by funds from the business enterprise sector (11.8 % in 2022 and 11.5 % in 2023) and foreign sources (10.8 % in 2022 and 16.4 % in 2023). In 2023, the share of own funds of organisations performing R&D rose sharply to 27.8 % of total R&D expenditure, compared with only 9.8 % in 2022(Ukrstat, 2024). It is clear that the war significantly shifted the focus from R&D to other areas.

Despite the challenges faced by science and research in HEIs, research in the field of ESG/SDGs is very active. Thus, the National Research Foundation of Ukraine provides funding not only to scientists from research institutes but also from HEIs. For example, in 2021, a number of projects were funded in the area of "Science for Security and Sustainable Development of Ukraine", including "Implementation of climate-neutral innovations in the management of agrarian nature use in the context of ecological and energy security of Ukraine" (West Ukrainian National University), "Modelling and foresight of environmental, behavioural and institutional patterns of carbon-neutral development to ensure energy security of Ukraine" (Sumy State University), "Development of economic mechanisms for improving energy efficiency and sustainable development of renewable energy in Ukrainian households" (Sumy State University), "Restructuring of the national economy in the direction of digital transformations for sustainable development" (Sumy State University) (NRFU, 2024).

A number of research projects focusing on the implementation of sustainable practices are carried out within the Jean Monnet module. Thanks to the support of the EU Erasmus+ program under the Jean Monnet Module, a number of studies have been carried out. So, within the project "Transparency. Accountability. Responsibility. Governance. Europe. Trust. Sustainability"

(101085395 – TARGETS–ERASMUS-JMO-2022-HEI-TCH-RSCH), that is conducted at Sumy State University, a monograph entitled "Sustainability Benchmarks and Progress: EU-Ukraine Experience" will be prepared. It will explore the integration and evaluation of sustainable development within the EU and Ukraine, focusing on the forthcoming adoption of EU sustainability values at multiple levels, from individual companies to national policies. It will examine EU regulations on labeling and benchmarking in responsible investment markets, alongside ratings and rankings to assess corporate sustainability within the EU. The work will also explore the development of sustainability indices by major European stock exchanges and will share insights on the mutual lessons to be learned from implementing and regulating these benchmarks in an EU-Ukraine context. This comprehensive study provides a broad perspective on the anticipated challenges and strategies for advancing sustainable practices across different governance and economic frameworks (SumDU, 2024b).

Also, in 2024, the Lutsk National Technical University will begin implementing the Erasmus+ Jean Monnet Module project "European Values and Best Practices of the Development of Cities and Territories Towards Sustainable Development" 101174676 – EVDOC– ERASMUS-JMO-2024-HEI-TCH-RSCH. The project focuses on researching best practices for developing sustainable cities and territories in Europe. Considering the activities planned within the project, it can be said that this initiative will promote dialogue between researchers and society, particularly local and regional policymakers, civil servants, civil society representatives, and individuals from various levels of education (LNTU, 2024).

The project "EU for People's Digital, Eco, and Financial Awareness (EU4DEFA)" is being implemented by the Department of Insurance, Banking, and Risk Management at Taras Shevchenko National University of Kyiv (Ukraine) as part of the European Union's Erasmus+ program, Jean Monnet Module "EU for People's Digital, Eco, and Financial Awareness" (Jean Monnet Module 101174694 – EU4DEFA – ERASMUS-JMO-2024-HEI-TCH-RSCH). The main objective of the project is to contribute to filling critical gaps in the understanding and implementation of EU policies in Ukraine, focusing on the pillars of digitalization, Green Deal and financial awareness. By focusing on the aspects of digitalization, the Green Deal,

and financial awareness in EU policy and its implementation in Ukraine, EU4DEFA promotes sustainability across multiple dimensions (Table 1.2).

Table 1.2. EU4DEFA through the ESG perspective

EU4DEFA from	Environmental perspective (E)	One of the three key pillars of the project is the Green Deal, which is inherently linked to environmental sustainability. The project promotes knowledge about economic methods of environmental protection in the EU through schools and workshops. EU4DEFA raises awareness among pupils, students, teachers and lecturers of Ukrainian HEIs about climate change, sustainable resource use and reducing carbon footprints in the EU. The project promotes dialogue in Ukrainian society on EU environmental policies and practices and the prospects for their implementation in Ukraine.
	Social perspective (S)	The target audience of the project is very diverse and includes pupils, students, school teachers and university lecturers. Their participation in the schools or workshops does not require any payment or additional effort, as the events are conducted online with no entry barriers. EU4DEFA contributes to economic inclusion by fostering a deeper understanding of financial systems, economic policies and their role in promoting sustainable economic growth.
	Governance perspective (G)	The promotion of scientific research through open-access publications within the project aims to facilitate discussions among policymakers, academics and the wider public about existing EU policies in the three key pillars of digitalisation, Green Deal and financial awareness, as well as the potential for implementing similar experiences in the Ukrainian context. EU4DEFA provides transparent and accessible research for informed and more resilient governance at all levels.

Source: EU4DEFA, 2024

EU4DEFA strongly contributes to Sustainable Development Goals (SDGs). Free participation in online schools and workshops meets SDG 4: Quality Education. This ensures that participants from different educational levels will be equipped with the necessary knowledge and skills to develop relevant policies in Ukraine. Through the financial awareness pillar the project supports SDG 8: Decent Work and Economic Growth by promoting sustainable economic growth and improving financial literacy. By focusing

on digitalization, the project contributes to SDG 9: Industry, Innovation, and Infrastructure, and promotes digital transformation that supports economic and societal development. Through EU4DEFA`s Green Deal pillar, EU4DEFA directly addresses SDG 13: Climate Action by raising awareness of climate change mitigation strategies. The project uniquely combines public engagement, policy discussions, and scientific research to bridge existing gaps in understanding and implementing EU policies in Ukraine. EU4DEFA leads to more informed citizens and professionals, ultimately fostering an environment for Ukraine's economic development.

Second, HEIs can establish ***hubs and incubators*** specifically designed to nurture and develop new enterprises and innovations that adhere to ESG principles and contribute towards SDGs. These hubs provide the resources, mentorship, and networks necessary to translate innovative ideas into practical solutions and successful business ventures.

In cooperation with the Ministry of Education and Science of Ukraine, a program was developed to commercialize research developments from Ukrainian universities. This initiative aims to overcome the barriers preventing Ukrainian innovations from entering global technology markets, promoting the country’s success in this field. The program's main goal is to create innovative businesses based on domestic scientific achievements, ensuring that both the technologies and their value remain in Ukraine. One of the leading tools in this direction is eō Business Incubators–the first and currently the only American technology incubator in Ukraine. Founded in 2019, it quickly became the country's top business incubator and accelerator. Over 140 startups have completed the eō program, achieving an overall internal rate of return of over 40 %. This unprecedented achievement in Ukraine demonstrates outstanding global results, even considering only direct investments without grant funding. The combined valuation of the twelve most successful startups to graduate from the program has exceeded USD 100 million, as assessed by external investors. eō graduates have also excelled at over 20 prestigious global technology exhibitions and investment forums. Much of this success is attributed to the support of a team of more than 50 highly skilled mentors from around the world and a unique business incubation program rooted in the best American practices. An important aspect of this program’s implementation is overcoming the misconceptions

prevalent in Ukraine's academic and research communities, which view business incubators as being solely for young creative entrepreneurs. In reality, the eō business incubator model is based on American practices, particularly those of universities like MIT and Stanford, where the primary focus is on commercializing the research of not only students but also faculty members and researchers (RMN, 2024).

Sustainable Campus and Institutional Practices

HEIs play a significant role in promoting sustainability not only through their educational and research efforts but also by implementing sustainable practices within their campuses. The following initiatives contribute to creating a more sustainable and responsible campus environment.

Implementing green campus initiatives by HEIs can be realized through their environmental impact by initiating green campus projects. These include increasing energy efficiency, reducing waste through recycling programs, promoting biodiversity by maintaining green spaces and transitioning to renewable energy sources. Implementing systems for monitoring resource consumption helps HEIs minimize their environmental impact and promotes sustainability in day-to-day campus operations.

For example, Taras Shevchenko National University of Kyiv is participating in the Erasmus+ KA2 project "Green Roofs in Higher Education Institutions as Sustainable Centers for Research, Participation, Environmental Consciousness, and O2 Generation" (GREENO2). Project objectives are: promoting green roofs as the academic community's response to environmental protection, active participation, and well-being in higher education; providing environmental education through the use of green roofs; encouraging the implementation of green roofs as centers for research and fostering environmental awareness, as well as spaces for learning and/or relaxation (TSNUK, 2023, p. 212).

The project "Higher Education. Energy Efficiency and Sustainable Development" is being implemented under the Energy Efficiency and Sustainable Development of Ukraine Grant Agreement with the European Investment Bank and the Nordic Environment Finance Corporation. The Ministry of Education and Science of Ukraine and the European Investment Bank initiated and developed the project to support Ukrainian universities in

energy efficiency, signed on 19 December 2016. The total cost of the project is EUR 160 million. The participating universities are Vinnytsia National Technical University, National Technical University "Kharkiv Polytechnic Institute", Lviv Polytechnic National University, National University "Yuri Kondratyuk Poltava Polytechnic", Chernihiv Polytechnic National University, and Sumy State University. The National University "Yuri Kondratyuk Poltava Polytechnic" will receive EUR 7.5 million. The project includes all possible measures for thermal modernization, insulation, replacement of windows with energy-efficient ones with higher energy efficiency factor, replacement of water supply and sewage systems, installation of solar panels, replacement of ventilation system, replacement of lighting system with energy-saving elements, replacement of heating system, installation of automatic energy consumption and management systems, installation of heat pumps and other measures (Doroshenko, 2023; VNTU, 2024).

A sustainable campus requires ***ethical and inclusive governance*** structures that ensure all voices are heard and considered in decision-making processes. This involves promoting diversity and inclusion at all levels of university administration, ensuring transparency, and upholding ethical standards in all institutional practices. Inclusive governance allows HEIs to be responsive to the needs of their diverse student and staff population. Taras Shevchenko National University of Kyiv has developed the Strategy for Ensuring Gender Equality, which states that as of the beginning of 2023, there will be 5 women among 9 vice-rectors at TSNUK, 7 deans of faculties/directors of institutes are women, and 50 % of department heads are women. Women are also in charge of other university departments, including accounting, planning and finance, legal, campus and canteens (TSNUK, 2024c, p. 1).

The Gender Resource Centre at Sumy State University also plays a pivotal role in raising awareness within the university community. With the active involvement of university staff and members of the Centre, numerous educational events on gender equality have been organized for both the academic community at Sumy State University and other higher education institutions across Ukraine. Key initiatives carried out in 2022-2023 include hosting a webinar on gender aspects in the educational process for the Alliance of Ukrainian Universities and implementing a project supported

by the Ukrainian Women's Fund to strengthen a network of gender think tanks. This project focuses on jointly developing tools to promote gender equality, enhancing the professional development of gender specialists, and organizing study visits (SumDU, 2024a, p. 21).

HEIs have the opportunity to engage not only their internal community but also the wider public in sustainability initiatives. ***Community engagement*** efforts can include partnerships with local organizations, sustainability awareness campaigns, and outreach programs to share best practices for sustainable living. By involving the broader community, universities contribute to a culture of sustainability that extends beyond the campus.

This is a relatively new area for HEIs. At the Taras Shevchenko Luhansk National University, strong collaboration has been established with local communities across several key areas. In particular, efforts are focused on public education aimed at promoting and protecting human and civil rights and freedoms. This includes organizing joint events to raise public awareness about the mechanisms available for defending these rights, such as conferences, seminars, round tables, and meetings. Additionally, joint projects and programs are being developed and implemented to enhance the legal consciousness of young people and instill respect for human rights and fundamental civil liberties (Kravchenko et al., 2023).

For example, the Department of Insurance, Banking, and Risk Management of TSNUK has launched a program called FinEd. In 2019, the department launched a series of financial literacy lectures during the spring and autumn school breaks, and faculty members held financial literacy seminars for 10th and 11th graders. This led to involving university students and expanding the initiative beyond the standard lecture series, which evolved into creating a financial literacy hub and organizing competitions. This expanded format was successfully implemented in 2022 and 2023 with the support of Genesis, the National Bank of Ukraine, the Deposit Guarantee Fund and Iplan (Faculty of Economics of TSNUK, 2024).

One more successful example is the Diia.Business project operating as an independent initiative within the broader framework of the digital state brand “Diia”, with the overarching objective of promoting the growth of entrepreneurship in Ukraine. In December 2020, a “Diia.Business” center

was established at the Faculty of Economics of Taras Shevchenko National University of Kyiv, providing a dedicated space for students and aspiring entrepreneurs. This initiative was spearheaded by the Ministry of Digital Transformation of Ukraine in collaboration with the national "Diia.Business" entrepreneurship development project, with technical support provided by HUAWEI Ukraine. "Diia.Business" center plays a pivotal role in fostering entrepreneurship among students and young people through a variety of educational programs and initiatives. These efforts are designed to support the realization of business ideas, enhance entrepreneurial competencies, and facilitate professional development and networking within the entrepreneurial ecosystem. Key educational activities include workshops, webinars, lectures, and training sessions led by industry professionals aimed at fostering entrepreneurial culture and skills among students; film seminars in foreign languages, alongside educational games and interactive practices. Through these offerings, the "Diia.Business" center serves as a vital hub for nurturing the next generation of Ukrainian entrepreneurs, providing them with the tools, knowledge, and support necessary to succeed in a competitive global market (Faculty of Economics of TSNUK, 2024).

Cooperation between local communities and universities has become increasingly important during the war. Among the key areas where universities can provide significant support are psychological assistance, social adaptation, educational activities and project preparation. Universities have the potential to stimulate local economic development by organizing training for internally displaced persons (IDPs) and other affected populations, focusing on building entrepreneurial skills and securing resources for individual projects. One notable example of such cooperation is a project organized by Kyiv National Economic University named after Vadym Hetman in collaboration with the Starobilsk District State Administration. A training session on "How to write a project and secure funding for your own business or initiative" was held for IDPs from Luhansk and other occupied regions of Ukraine. Participants were inspired and given practical tools to implement their business ideas. With the trainer's support and assistance in writing grant applications, one of the participants successfully started his own business – an important step in supporting IDPs and facilitating their adaptation to new circumstances.

This collaboration is continuing, with work underway to develop a website for a humanitarian hub that will improve communication with IDPs and enhance the coordination of assistance efforts (KNEU, 2024).

Conclusions

The human capital within Ukrainian HEIs is exceptionally strong, characterized by a high level of expertise, creativity, and potential. Nonetheless, to maximize the impact of this intellectual resource, it is crucial that it be complemented with adequate financial support. Sustainable development in higher education cannot rely solely on human capital; it requires consistent investments in infrastructure, research, and innovative programs that will enable universities to address the complex challenges associated with ESG and SDGs effectively. Therefore, securing financial resources remains a critical factor in empowering HEIs to leverage their intellectual capacities fully and to drive meaningful, long-term contributions to sustainable development both locally and globally.

In addition to financial support, fostering a culture of cooperation and partnership is equally important. Ukrainian universities should strengthen their links with local and international stakeholders. Cooperation between Ukrainian HEIs, national government agencies, and the private sector has developed actively in recent years, with positive results in integrating ESG principles in the university environment and the real economy. However, expanding cooperation to the international level remains a significant challenge for Ukrainian higher education. The war has acted as a catalyst, accelerating the integration of the Ukrainian academic community with foreign partners. By actively participating in global networks and partnerships, universities can access best practices, innovative solutions, and additional funding opportunities.

A promising area for education should be the creation of sustainable research ecosystems that foster interdisciplinary collaboration. Partnerships between universities and collaboration across sectors and disciplines are crucial to addressing the complex challenges of sustainable development. Creating international research consortia based on an interdisciplinary approach will enable innovative contributions to address the pressing environmental, social, and economic challenges outlined in the ESG and the SDGs.

More generally, the success of implementing the ESG and SDGs in higher education depends on a holistic approach that encompasses all levels of university activity – from teaching and research to management practices and the campus. Universities should see themselves as catalysts for change, with a responsibility to lead by example. This means integrating sustainability into every aspect of their operations and ensuring their policies and practices align with global sustainability goals. In doing so, higher education institutions can contribute to national and global efforts to achieve sustainable development and prepare future generations of leaders to meet the evolving challenges of a rapidly changing world.

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Chapter 2.
Assessement of ESG/SDGs introduction in HEIs

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Introduction

Higher Education Institutions (HEIs) in Ukraine are actively engaged in a wide range of initiatives aimed at upholding the Environmental, Social, and Governance (ESG) principles and contributing to achieving Sustainable Development Goals (SDGs). However, to establish a more comprehensive and coherent understanding of these efforts, there is a need for a systematic evaluation of the initiatives being implemented across individual universities. Such an evaluation would help identify existing gaps or underdeveloped areas–so-called "blind spots"–that require additional attention and resources to ensure more balanced progress.

Given the importance of adhering to ESG principles and achieving SDGs, the Times Higher Education (THE) Impact Rankings have been developed to assess universities based on their contribution to the SDGs. These rankings use a carefully developed set of indicators to enable detailed and fair comparisons across four key areas: research, stewardship, outreach and teaching.

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Mapping the Sustainable Development Goals to HEIs' Indicators and ESG Principles

In Chapter 1 have been already discussed the characteristics of the three areas: (i) teaching and curricula development; (ii) research and innovation; (iii) sustainable campus and institutional practices This ranking additionally includes stewardship because, as custodians of vast resources – both physical assets and human capital, including faculty, staff, and students – HEIs play a critical role in sustainable resource management, which is essential to advancing the SDGs. Table 2.1 presents a detailed framework that integrates the implementation of ESG principles with SDGs within HEIs. We will use for ESG the abbreviations: *E-principle, S-principle and G-principle*. This framework outlines key indicators used to measure university performance in relation to each SDG and demonstrates the alignment between these indicators and ESG principles. By mapping these elements, the table highlights how HEIs contribute to sustainable development. It is important to note that it can be challenging to clearly delineate each Sustainable Development Goal and its corresponding ESG principles. Often a single goal may align equally with multiple principles (such cases are marked as "◐"), but sometimes there is a dominant principle (marked as "●") and a supplementary principle (marked as "O").

Table 2.1. Mapping the Sustainable Development Goals to HEIs' Indicators and ESG Principles

SDG	The Times Higher Education Impact Rankings metrics	E	S	G
SDG 1: No Poverty	Research on poverty (27.0 %)		●	
	Proportion of students receiving financial aid (27.0 %)		●	
	Community anti-poverty programmes (23.0 %)		●	
	University anti-poverty programmes (23.0 %)		●	
SDG 2: Zero Hunger	Research related to hunger (27.0 %)		●	
	Campus food waste (15.4 %)		●	
	Student hunger (19.2 %)		●	

SDG	The Times Higher Education Impact Rankings metrics	E	S	G
	Proportion of graduates in agriculture and aquaculture, including sustainability aspects (19.2 %)		●	
	National hunger (19.2 %)		●	
SDG 3: Good Health and Well-Being	Research on health and well-being (27.0 %)		●	
	Proportion of health graduates (34.6 %)		●	
	Collaborations and health services (38.4 %)	○	●	
SDG 4: Quality Education	Research on early years and lifelong learning education (27.0 %)		●	
	Proportion of graduates with a teaching qualification (15.4 %)		●	
	Lifelong learning measures (26.8 %)		●	○
	Proportion of first-generation students (30.8 %)		●	
SDG 5: Gender Equality	Research (27.0 %)		●	
	Proportion of first-generation female students (15.4 %)		●	
	Student access measures (15.4 %)		●	
	Proportion of senior female academics (15.4 %)		●	○
	Proportion of women receiving degrees (11.5 %)		●	○
	Women's progress measures (15.3 %)			○
SDG 6: Clean Water and Sanitation	Research on clean water and sanitation (27.0 %)	●	○	
	Water consumption (19.0 %)	●		
	Water usage and care (23.0 %)	●	○	
	Water reuse (12.0 %)	●		
	Water in the community (19.0 %)	●	○	
SDG 7: Affordable and Clean Energy	Research on affordable and clean energy (27.0 %)	●	○	
	University measures towards affordable and clean energy (23.0 %)		○	
	Energy use (27.0 %)		○	
	Energy and the community (23.0 %)		○	

SDG	The Times Higher Education Impact Rankings metrics	E	S	G
SDG 8: Decent Work and Economic Growth	Research on economic growth and employment (27.0 %)	○	●	
	Employment practices (19.6 %)		●	○
	Expenditure per employee (15.4 %)		●	○
	Proportion of students taking work placements (19.0 %)		●	
	Proportion of employees on secure contracts (19 %)			○
SDG 9: Industry, Innovation and Infrastructure	Research on industry, innovation and infrastructure (11.6 %)	●	○	
	Patents citing university research (15.4 %)	●	○	
	University spin-offs (34.6 %)	●	○	
	Research income from industry (38.4 %)	●	○	
SDG 10: Reduced Inequalities	Research on reduced inequalities (27.0 %)		●	
	First-generation students (15.5 %)		●	
	Students from developing countries (15.5 %)		●	
	Students and staff with disabilities (23.0 %)		●	○
	Measures against discrimination (19.0 %)		●	○
SDG 11: Sustainable Cities and Communities	Research on sustainable cities and communities (27.0 %)	◐	◐	
	Support of arts and heritage (22.6 %)		◐	
	Expenditure on arts and heritage (15.3 %)		◐	
	Sustainable practices (35.1 %)	◐	◐	
SDG 12: Responsible Consumption and Production	Research on responsible consumption and production (27.0 %)	◐	◐	
	Operational measures (26.7 %)	◐	◐	◐
	Proportion of recycled waste (27.0 %)	◐		
	Publication of a sustainability report (19.3 %)	◐		◐
SDG 13: Climate Action	Research on climate action (27.0 %)	●		
	Low-carbon energy use (27.0 %)	◐		◐
	Environmental education measures (23.0 %)	◐		
	Commitment to carbon-neutral university (23.0 %)	◐		◐

SDG	The Times Higher Education Impact Rankings metrics	E	S	G
SDG 14: Life Below Water	Research on life below water (27.0 %)	●		
	Supporting aquatic ecosystems through education (15.3 %)	●		
	Supporting aquatic ecosystems through action (19.4 %)	●		
	Water-sensitive waste disposal (19.3 %)	●		
	Maintaining a local ecosystem (19.0 %)	●		
SDG 15: Life on Land	Research on land ecosystems (27.0 %)	●		
	Supporting land ecosystems through education (23.0 %)	●		
	Supporting land ecosystems through action (27.0 %)	●	○	○
	Land-sensitive waste disposal (23.0 %)	●		
SDG 16: Peace, Justice and Strong Institutions	Research on peace and justice (27.0 %)		◐	
	University governance measures (26.6 %)			◐
	Working with government (23.2 %)			◐
	Proportion of graduates in law and civil enforcement (23.2 %)		◐	
SDG 17: Partnerships for the Goals	Research (27.1 %)			●
	Relationships to support the goals (18.5 %)			●
	Publication of SDG reports (27.2 %)			●
	Education on the SDGs (27.2 %)			●

Source: THE (2024)

We will analyse the indicators associated with each SDG and review the performance of the top three universities ranked in 2024, in order to identify best practices. In addition, the comparison will include universities from Ukraine and the Czech Republic, focusing on data from 2022 and 2024 to show tendencies, as these rankings were first introduced in 2020. The maximum achievable score for each SDG is 100 points.

SDG 1: No Poverty

HEIs can contribute to poverty alleviation in a number of ways. Primarily, their efforts should focus on ***Research on poverty***, as it is essential to understand the causes of poverty, the methods used to measure it, its

consequences, and the steps needed to address it. Research on poverty includes key indicators such as *the Field-weighted citation index of papers related to poverty, the Number of publications related to poverty, and the Proportion of all research papers co-authored with low or lower-middle-income countries* (THE, 2024). The latter indicator is particularly important as it not only provides a better understanding of the challenges faced by these countries but also supports researchers from these countries in their efforts to produce high-quality, high-impact research.

Secondly, it is the ***Proportion of students receiving financial aid***. This indicator demonstrates the accessibility of education for all social groups, regardless of their financial situation. In this ranking, only the criterion of "significant financial aid" is considered (THE, 2024), but in reality, this support can take other forms, as it does in Ukraine (Box 4).

Box 4:

Preferential Admission Conditions and Beneficiary Categories for Applicants to HEIs in 2024

"Beneficiary Categories for Applicants in 2024

The following groups have the right to participate in the competitive selection process based on the results of an interview and/or creative competition, with admission based on a positive assessment:

- Persons with disabilities as a result of war;
- Individuals affected by the Chornobyl disaster;
- Persons with disabilities who are unable to attend an HEIs.

The following groups can participate in the competitive selection process based on the results of an interview instead of the National Multidisciplinary Test (NMT) and creative competition, with admission granted if they achieve sufficient scores:

- Participants affected by the Revolution of Dignity and combatants, including those serving mandatory military service;
- Persons with specific physical needs who were unable to take the NMT;

- Persons with disabilities who cannot take the NMT in 2024 due to illness or pathological conditions;
- Military personnel, police officers, rescuers, members of the State Criminal-Executive Service applying for contract-based master's degree programs at military higher education institutions and their branches, or institutions with specific conditions of study (except for the Law and International Law specializations);
- Persons residing in or registered in temporarily occupied territories, settlements along the contact line, or administrative boundaries, or those who relocated from these areas after January 1, 2024. Applicants who relocated from these territories before January 1, 2024, may apply for quota-2 for budget-funded programs (but must take the NMT).

Special Conditions for Admission to Budget-Funded Places (Quota 1)

The following groups may use special conditions for admission to allocated budget-funded places (quota 1):

- Participants affected by the Revolution of Dignity and combatants, including those serving mandatory military service;
- Persons with specific physical needs who were unable to take the NMT;
- Persons with disabilities who cannot take the NMT in 2024 due to illness or pathological conditions, and those participating in the main and additional NMT sessions in 2024;
- Persons who have been detained as a result of armed aggression against Ukraine (including those who were held captive);
- Orphans and children deprived of parental care.

Mandatory Transfer to Vacant Budget-Funded Places

The following groups are entitled to mandatory transfer to vacant budget-funded places:

- Children of deceased (or missing) individuals, as specified in the Law of Ukraine “On the Status of War Veterans, Guarantees of Their Social Protection”;
- Children whose parent died in captivity (if the fact of deprivation of personal freedom has been established);

- Children whose parent died from injuries sustained during the Revolution of Dignity;
- Children whose parent was a combatant in other countries and who died or went missing during those military operations;
- Children whose parent (adoptive parent) was a servicemember who died or went missing while performing military duties;
- Children whose parent (adoptive parent) was a police officer who died or went missing while performing official duties.

Additionally, subject to the availability of vacant budget-funded places, the following groups are eligible for transfer:

- Persons with disabilities of groups I and II, and children with disabilities under the age of 18 who are not prohibited from studying in their chosen field;
- Persons with disabilities who are participants in the liquidation of the Chornobyl nuclear disaster or who were affected by the Chornobyl disaster;
- Children of participants affected by the Revolution of Dignity, combatants, and persons with war-related disabilities who are applying in the year they complete their previous educational level (e.g., applying for a bachelor's degree after completing high school);
- Miners with more than three years of underground work experience and children of miners with over 15 years of service, or those who became disabled or died as a result of workplace accidents;
- Persons with disabilities due to illness or pathological conditions;
- Orphans and children deprived of parental care;
- Persons registered or residing in areas of potential combat operations as of July 1, 2024;
- Internally displaced persons (IDPs);
- Children from large families".

Source: https://www.education.ua/news/2024/01/30/pilhovi-umovy-vstupu-ta-pilhovi-katehorii-vstupnykiv-2024/

Thirdly, ***University anti-poverty programs*** aim to ensure that students from low-income families or low-income countries have access to education and are supported in completing their studies.

Fourthly, ***Community anti-poverty programs*** encompass a broader context, extending beyond the university itself. These programs leverage resources, particularly human capital, to support initiatives that foster the creation and promotion of sustainable businesses within local communities. This may also include financial assistance for such businesses in more developed countries. Additionally, active participation in developing and promoting policy decisions aimed at poverty reduction is a crucial component of these efforts (THE, 2024).

The S-principle is the dominant principle for SDG 1, as efforts to alleviate poverty directly impact the well-being of individuals and communities.

For example, Universitas Airlangga (UNAIR) (Indonesia) achieved the top global ranking for SDG 1: No Poverty, in 2024 due to its dedicated focus on poverty eradication initiatives, particularly those aimed at benefiting local communities. These initiatives include implementing community-oriented entrepreneurship development programs. They offer participants comprehensive training in startup development, networking, and financial support, all intending to benefit community members directly. Collaboration is central to UNAIR's approach. The university works with a wide range of partners, including villages, business communities, and small and medium enterprises (SMEs), ensuring that its initiatives have a tangible impact on the communities it serves (UNAIR, 2024).

York University (Canada), which placed second on SDG 1, stressed that "Eradicating poverty is not a task of charity. It is an act of justice and the key to unlocking enormous human potential" (York University, 2024). Osgoode Hall Law School, as part of York University, offers students to support low-income communities in Toronto through two legal clinics: Parkdale Community Legal Services (PCLS) and the Community & Legal Aid Services Program (CLASP). Each year, 40 senior students take a poverty law seminar and serve as caseworkers at the clinic for one term, working four days per week under the supervision of lawyers to provide legal services to the Parkdale-Swansea community (York University, 2024). Also ranked third, University of Johannesburg focuses on supporting students

in need and fostering start-ups within local communities (University of Johannesburg, 2024).

Box 5:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 1: No Poverty

Year	2022				2024				
Score	4.4–33.9	34.1–47.4	53.9–60.8	***HEIs in ranking***	4.8–22.3	22.4–34.6	34.7–43.5	43.6–52.7	***HEIs in ranking***
Ukraine	11	2	1	***14***	11	7	2	2	***22***
Czechia	2	–	–	***2***	2	–	1	–	***3***

Source: THE (2024)

SDG 2: Zero Hunger

This ranking emphasizes universities' efforts in hunger-related research, their educational programs on food sustainability, and their dedication to reducing food waste and combating hunger within students and communities (THE, 2024).

Research on hunger includes indicators such as *the Proportion of research papers in the top 10 percent of journals as defined by Citescore, the Field-weighted citation index of papers, and the Number of publications* (THE, 2024).

Campus food waste measurement is based on *Campus food waste tracking and Campus food waste per person* (THE, 2024). Assessing food waste at HEIs provides insight into the proportion of food that remains uneaten and is subsequently discarded. The first indicator reflects the implementation of systems that monitor food waste. The second indicator quantifies the amount of food waste per person. This is a complex issue, yet one that can be addressed through appropriate measures. A key contributor to food waste is serving fixed portions, which may exceed the consumption needs of individuals. A notable example of addressing this challenge is Mendel University in Brno (the Czech Republic), where the cafeteria was redesigned to serve food by weight, allowing students to select both the quantity and variety of their meals, thereby reducing waste.

Student hunger is measured by indicators as *Programme on student food insecurity, Interventions to target hunger among students and staff – for example, providing access to food banks, Sustainable food choices for all on campus, including vegetarian and vegan food, Healthy and affordable food choices for all on campus* (THE, 2024). HEIs may adopt various solutions to address this issue. For example, at Mendel University in Brno (the Czech Republic), students and faculty benefit from discounts at the cafeteria. Similarly, Koç University (Turkey) has a cafeteria where a set meal can be purchased for approximately 1 USD. However, resolving this issue undoubtedly involves a financial component: to provide more affordable meals, the university or the community must allocate additional financial resources.

The Proportion of graduates in food sustainability indicates that universities have established educational programs focused on the study of food sustainability (THE, 2024).

National hunger includes indicators supporting local farmers and food producers (THE, 2024). These are quite specific indicators, as the practices mentioned are typically more applicable to agricultural universities. In the case of traditional universities, such practices often take the form of workshops aimed at enhancing the entrepreneurial skills of farmers. Regarding the procurement of products from local farmers, Ukraine operates under a tender-based procurement system, which introduces certain complexities.

In the context of ESG compliance, the primary focus is on the *S-principle*, as ensuring food security directly impacts the well-being of students, staff and local communities.

In 2024, Queen's University was ranked first for its efforts toward achieving SDG 2: Zero Hunger, with numerous initiatives benefiting both students and the local community. Among the many initiatives implemented by Queen's University (Canada), a few key examples stand out. One notable initiative is that, between May 2022 and April 2023, 69 % of the food purchased by Queen's Hospitality Services was sourced from within Canada, with 45 % coming from local suppliers within a 500 km radius. Additionally, the student-run organization Soul Food collects surplus food from campus cafeterias and delivers it to four local shelters each night. Through the Swipe It Forward Queen's program, students can donate one meal per day (up to five per semester) to peers in need (QUEENSU, 2024).

Following Queen's University, another institution demonstrating significant efforts in addressing food insecurity is Oklahoma State University (the USA), ranked second for its initiatives aligned with SDG 2. The university has implemented several impactful programs to combat hunger on campus. Among these is the Pete's Pantry Program, which provides free food to students and advocates for reducing food insecurity within the university community. Additionally, Pete's Eats, a food recovery initiative, donates surplus food from dining services to students and their families, further supporting those in need (OKSTATE, 2024).

Lincoln University (New Zealand), ranked third for its achievements in SDG 2, excels in supporting local farmers and food producers by providing them with essential tools, knowledge, and resources to adopt sustainable agricultural practices (Lincoln University, 2024).

Box 6:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 2: Zero Hunger

Year	2022				2024				
Score	1.8–33.3	33.4–44.8	55.2–65.8	***HEIs in ranking***	2.5–30.9	31.1–46.6	46.9–54.3	61.6–71.8	***HEIs in ranking***
Ukraine	8	2	1	***11***	11	4	1	-	***16***
Czechia	1	-	-	***1***	2	-	-	1	***3***

Source: THE (2024)

SDG 3: Good Health and Well-Being

This group of indicators focuses on three main areas: research, teaching, and collaboration aimed at supporting the physical and mental health of students, staff, and local communities. While the research and teaching indicators are similar to those previously discussed, ***the Collaborations and health services*** category includes some particularly noteworthy indicators: *Smoke-free policy, Collaborations with local, national or global health institutions to improve health and well-being outcomes, Outreach programmes in the local community to improve or promote health and*

well-being, Access to sexual and reproductive healthcare services for students, Access to mental health support for students and staff, Community access to university sports facilities (THE, 2024).

For example, in Ukraine, HEIs have banned smoking within university buildings and public spaces. This practice is strongly supported by the Ministry of Education of Ukraine. In response to the heightened risks posed by the bombings of Kyiv and the disruption of critical infrastructure, the university clinic at Taras Shevchenko National University of Kyiv has taken significant steps to enhance its preparedness and resilience. A secure shelter has been established in the basement, complemented by installing a high-capacity generator, which ensures the clinic's operational stability during emergencies. With its reliable shelter, qualified medical staff, appropriate medical equipment, backup power supply, and attached cell towers for communication, the clinic has the potential to serve as a "resilience hub" for the campus residents, providing essential services and shelter in times of war (TSNUK, 2022, p. 259).

The S-principle plays a dominant role in the context of SDG 3, as it directly focuses on the physical and mental well-being of students, staff, and local communities. Universities contribute by providing access to healthcare services, promoting mental health initiatives, and ensuring the availability of resources for physical well-being. *The E-principle* relates to SDG 3 through environmental factors that influence health. Universities can contribute by ensuring healthy environments on campus–such as reducing pollution, improving air quality, and promoting green spaces.

In 2024, the first-ranking JSS Academy of Higher Education and Research (India) offers a curriculum that is enriched with healthcare education and research, aligning with global requirements. The institution provides healthcare infrastructure and services for urban and rural populations while offering healthcare training to students to support various healthcare operations. Additionally, JSS Academy engages in outreach programs and community services, further contributing to the improvement of public health (JSSAHER, 2024).

Second-ranking Australian Catholic University (Australia), for example, offers a wide range of support services for students, including International Student Advisers, Counsellors for family, emotional, physical, and psychological support, and Campus Ministers for religious and spiritual guidance. Access and

Disability Advisers are available to support students with disabilities or chronic health conditions, while Career Advisers help with career development, CVs preparation and interview skills gaining. Academic Skills Advisers help students adapt to the academic demands of studying in a new country. The university also has on-campus medical centres (ACU, 2024).

The third position in the 2024 ranking was taken by Mahidol University (Thailand), which has prioritized "Enabling opportunities for physical activity" and "Creating opportunities for recreation" as key aspects of its campus transformation to achieve SDG 3. Given the university's extensive network of faculties, institutes, and centers focused on medicine, public health, and health sciences, its significant research activity in this area is also noteworthy. In 2021, 85 % of Mahidol University's publications were related to SDG 3 (Mahaisavariya & Charmondusit, 2023).

Box 7:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 3: Good Health and Well-Being

Year	**2022**								
Score	63.7–68.6	41.5–53.2	27.0–41.4	0.8–26.9	53.3–63.6	73.9–79.6	84.8	68.7–73.8	***HEIs in ranking***
Ukraine	1	4	7	6	2				***20***
Czechia		1	1			1	1	1	***5***
Year	**2024**								
Score	60.0–67.5	0.8–43.0	43.1–51.1	71.9–75.8	51.2–59.9	75.9–80.9	81.3	67.6–71.8	***HEIs in ranking***
Ukraine	1	23	4	1	1				***30***
Czechia		1	1			1	1	2	***6***

Source: THE (2024)

SDG 4: Quality Education

The indicators for this goal consist of four key elements: Research on early years and lifelong learning education, Proportion of graduates with teaching qualifications, Lifelong learning measures, and Proportion of first-generation students (THE, 2024). Let us focus on the last two.

Lifelong learning measures include *Access to educational resources for those not studying at the university, Events that are open to the general public, such as lectures or specific educational courses, Educational events that provide vocational training for those not studying at the university, Educational outreach activities in the local community, including schools, Policy to ensure that these activities are open to all, regardless of ethnicity, religion, disability, immigration status or gender* (THE, 2024).

This section is particularly significant in the context of supporting the local community. While this tradition has deep roots, it has become somewhat forgotten within Ukrainian universities. It encompasses the organization of public lectures both on university campuses and offsite. Although outreach to prospective students is well established, the role of the university as a *third age institution* remains underdeveloped, with very few activities available for older adults.

The proportion of first-generation students reflects the inclusion of students who are the first in their families to pursue higher education (THE, 2024). In essence, this indicator also serves as a measure of the university's openness and accessibility to all segments of society, highlighting the institution's role in breaking down barriers to higher education for those from traditionally underrepresented backgrounds. By welcoming first-generation students, universities foster social mobility, contribute to the diversification among students and help to ensure that education is not limited to the privileged classes. This inclusiveness is crucial to promoting equity and extending the impact of education across all social strata.

The S-principle is central to SDG 4, as it emphasizes equitable access to education, social inclusion, and lifelong learning opportunities. Programs targeting first-generation students, gender equality initiatives, and support for students with disabilities are all examples of the *S-principle* in action. *The G-principle* aligns with SDG 4 by ensuring that effective governance includes the establishment of frameworks that guarantee academic freedom, institutional integrity, and educational equity.

In 2024, Aalborg University (Denmark) has achieved a top ranking for its high-impact research in the field of quality education (AAU, 2024). Hong Kong Baptist University (Hong Kong) ranked second, is also renowned

for its research in the field of improving teaching quality. Additionally, it implements initiatives such as faculty-student meetings to exchange ideas on teaching methodologies (HKBU, 2024). Amrita Vishwa Vidyapeetham (India), ranked third, implements several projects aimed at improving the quality of education, including the Rural India Tablet Education initiative, the Alcohol Awareness & Self-Esteem Program for Children in Tribal Villages, and the Amrita Virtual Interactive E-Learning World (Amrita, 2024).

Box 8:

Comparison of University Rankings in Ukraine and the Czech Republic on DG 4: Quality Education

Year	**2022**							
Score	49.8–58.0	2.9–33.6	33.7–41.6	41.7–49.7	77.1	67.7–73.1	62.0–67.6	***HEIs in ranking***
Ukraine	3	13	10	1				***27***
Czechia		1	2		1	1	1	***6***
Year	**2024**							
Score	25.7–44.1	56.3–62.0	4.0–25.6	44.2–49.9	62.1–65.6	75.0	65.7–69.2	***HEIs in ranking***
Ukraine	26	4	5	5	1			***41***
Czechia	3	1			1	1	1	***7***

Source: THE (2024)

SDG 5: Gender Equality

Gender equality remains significant regardless of the country being examined. Traditionally, as with other Sustainable Development Goals, assessments are made based on research conducted in this area, women's participation in such research, and the preparation of specialists. Additionally, the ***Proportion of first-generation female students*** is evaluated as a key indicator (THE, 2024).

An entire section is devoted to ***Student access measures***, which includes important metrics such as the *Tracking of application, acceptance, and completion rates for female students, Policies addressing application, acceptance, entry, and participation rates for female students, the Provision*

of appropriate access schemes for women (such as mentoring), and efforts to *Encourage applications in areas where women are underrepresented* (THE, 2024).

In Ukraine, women's inclusion in education is relatively high. For instance, in 2023, 31 160 women (14 %) and 36 687 men (17 %) were admitted to bachelor's programs on a budget-funded basis, while 67 756 women (31 %) and 84 220 men (38 %) were enrolled on a fee-paying basis. At the master's level, the distribution was as follows: 16 601 women (11 %) and 21 995 men (14 %) were admitted to budget-funded programs, and 1 136 women (32 %) and 888 men (25 %) to fee-paying programs (TSNUK, 2023, p. 22).

Despite these statistics, particular attention is still needed in the STEM fields, where gender disparities persist. However, many support programs have been introduced to increase women's participation. Nevertheless, the overall trajectory cannot be considered entirely positive when analyzing trends (Table 2.2).

Table 2.2. Parity index in HEIs in Ukraine[1]

Degree	2010/11[2]	2011/12[2]	2012/13[2]	2013/14[2]	2014/15[3]	2015/16[3]	2016/17[3]	2017/18[3]	2018/19[3]	2019/20[3]	2020/21[3]	2021/22[3]	2022/23[4]
Bachelor's degree or its equivalent	1,17	1,13	1,12	1,09	1,08	1,07	1,08	1,06	1,08	1,09	1,14	1,13	1,05
Master's degree or its equivalent	1,40	1,39	1,37	1,29	1,30	1,28	1,24	1,30	1,28	1,29	1,43	1,40	0,94
Doctorate or its equivalent	1,48	1,50	1,48	1,51	1,47	1,15	1,10	1,06	1,03	0,97	0,9[5]	0,87[5]	0,53[5]

Source: UKRSTAT (2024)

[1] Ratio of the number of women to the number of men (UNESCO methodology).

[2] Including students, trainees and students of HEIs of the Autonomous Republic of Crimea and the city of Sevastopol.

[3] Excluding pupils, students and students of HEIs of the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and part of the temporarily occupied territories in the Donetsk and Luhansk regions.

[4] Excluding students, trainees and students of HEIs of the territories temporarily occupied by the Russian Federation and part of the territories where hostilities are (were) taking place.

[5] Without taking into account the higher education holders of the Doctor of Science degree.

The next indicators in this group are ***Proportion of senior female academics, Proportion of women receiving degrees*** (THE, 2024). While women are well-represented across many areas of education, including at higher levels, ongoing efforts are required to ensure more balanced representation, particularly in traditionally male-dominated fields. These efforts are critical not only for achieving gender parity but also for fostering greater diversity in areas crucial for future development and innovation.

Women's progress measures include non-discrimination policies for women and transgender individuals, maternity and paternity policies to support women's participation, and the provision of accessible childcare facilities for both students and staff. Additional measures involve women's mentoring schemes with significant student participation, tracking and addressing gender disparities in graduation rates, and policies protecting individuals who report discrimination (THE, 2024). These initiatives represent a critical aspect of fostering an inclusive and equitable environment.

The S-principle is central to SDG 5, as it addresses the social dimensions of gender equality within universities. Still, *the G-principle* is fulfilled by establishing policies that promote non-discrimination, ensure equal representation of women in decision-making processes, and protect those reporting discrimination or harassment. Monitoring and evaluating the effectiveness of these policies is essential to ensure that universities actively contribute to reducing gender disparities and fostering an inclusive environment.

In 2024, Western Sydney University (Australia) ranked first in SDG 5. Key initiatives focused on advancing women into leadership roles, reducing the gender pay gap, and increasing workplace flexibility to support better women's needs (Western Sydney University, 2024). Institut Mines-Télécom Business School (France) implements practices to promote gender equality, from anti-discrimination measures within the university environment to offering scholarships for women and supporting gender studies (IMT-BS, 2024).

The Women University Multan (Pakistan) undertakes various activities to promote gender equality, including awareness and support initiatives. Awareness initiatives include seminars on breast cancer, highlighting

the importance of early detection, and on women's property rights, addressing the legal and social challenges women face in securing financial independence. Support initiatives focus on empowering women through education and entrepreneurship, such as workshops on research innovation and entrepreneurship for women scientists and seminars on the role of women in peace-building to encourage women's active participation in leadership and decision-making (The Women University Multan, 2022).

Box 9:

Comparison of University Rankings in Ukraine and the Czech Republic on DG 5: Gender Equality

Year	2022					2024							
Score	39.6–48.3	28.7–39.5	3.9–28.5	48.4–53.4	***HEIs in ranking***	42.1–48.1	35.3–42.0	2.2–35.2	48.2–55.2	55.3–59.1	59.2–63.0	63.1–68.2	***HEIs in ranking***
Ukraine	5	7	5		***17***	5	12	11	2	1	1		***32***
Czechia		1	1	1	***3***		4	2	1			1	***8***

Source: THE (2024)

SDG 6: Clean Water and Sanitation

An important component of this area is for HEIs not only to conduct national-level research on the topic but also to implement practices for efficient water use and reuse on campuses, provide free high-quality water to students, staff and visitors, and support local communities in educating them about water use and improving its quality through university-based research. For example, Mendel University in Brno (the Czech Republic) has installed water stations where people can get free, purified water. For Ukrainian universities, such practices are still in the future, as they require significant financial resources (THE, 2024).

The E-principle is fundamental to SDG 6, as it involves the sustainable use and management of water resources. Research and innovation in water sustainability can be promoted through academic programs and campus

initiatives, contributing to broader environmental goals and fostering a culture of responsible resource management. Universities can introduce systems for rainwater harvesting, greywater recycling, and other conservation measures, reducing their environmental impact. *The S-principle* complements *the E-principle* by ensuring access to clean drinking water and proper sanitation facilities is essential for safeguarding the health of students, staff, and visitors. Moreover, HEIs can engage in community outreach programs that raise awareness about water conservation and sanitation.

University of Exeter (United Kingdom) has implemented several innovative practices to enhance sustainability. Rainwater harvesting systems reduce reliance on mains water. Water consumption is actively tracked to monitor and manage usage, and ultra-low water use toilets are installed to minimize waste. Additionally, sustainable lab practices contribute to resource conservation, particularly in research settings (EXETER, 2024). Shoolini University of Biotechnology and Management Sciences (India) is an example of a university actively implementing sustainable development practices. The university has its own wastewater treatment system, which allows efficient purification and reuse of water for irrigation and other technical needs. A rainwater harvesting system has also been implemented, reducing dependence on external water supply sources. Shoolini University also collaborates with businesses on projects to find sustainable solutions for polluted industrial water (Shoolini University, 2024).

UNSW Sydney (Australia) is committed to ensuring the availability and sustainable management of water and sanitation through a number of initiatives, including the well-known Global Water Institute, which conducts collaborative research and education focused on water management and sanitation. Secondly, it has achieved a 54 % improvement in water efficiency since 2018, with over 20 water audits and more than 25 water refill stations installed across campus, reducing water use by 454,000 litres through sustainable laboratory practices. Thirdly, it partners with communities to address water security challenges and promote sustainable water management. Finally, the University engages with the public through events such as the Water Research Laboratory Open Day, promoting water literacy and encouraging future water engineers and scientists (UNSW, 2024b).

Box 10:

Comparison of University Rankings in Ukraine and the Czech Republic on DG 6: Clean Water and Sanitation

Year	2022				2024				
Score	38.1–47.1	13.1–38.0	2.8–12.7	***HEIs in ranking***	36.2–48.3	18.2–36.1	2.0–18.0	55.4–62.4	***HEIs in ranking***
Ukraine	1	8	1	***10***	1	8	7		***16***
Czechia		1		***1***	1	2	1`	2	***5***

Source: THE (2024)

SDG 7: Affordable and Clean Energy

Achieving this goal is crucial not only from the perspective of minimizing CO2 emissions into the atmosphere but also in terms of ensuring energy security. Dependence on fossil fuels has proven to be an effective tool in hybrid warfare. The Russian Federation's full-scale invasion of Ukraine, accompanied by the systematic destruction of Ukraine's centralized energy system through missile strikes, has highlighted the importance of developing independent and decentralized energy sources as a key element of resilience in the national energy infrastructure.

The measurement of achievements in this area is carried out through indicators such as: *Policy to ensure all renovations or new builds follow energy efficiency standards, Plans to upgrade existing buildings to a higher energy efficiency rating, Process for carbon management and reducing carbon dioxide emissions, Plan to reduce overall energy consumption, Reviews to identify areas where energy waste is highest, Policy on divesting from carbon-intensive energy industries, notably coal and oil* (THE, 2024).

Additionally, ***Energy use*** and ***Energy and the community*** are evaluated separately. This includes: *Programmes for the local community to learn about the importance of energy efficiency and clean energy, Promoting public pledges on 100 per cent renewable energy beyond the university, Services aimed at improving energy efficiency and clean energy for local industry, Informing and supporting governments on policy development related to clean energy and energy-efficient technology, and Assistance*

for start-ups that foster and support a low-carbon economy or technology (THE, 2024).

Thus, HEIs contribute not only through education and research (Box 11) but also by directly implementing technologies on their campuses. A notable example is the energy efficiency project at Lutsk National Technical University, where, with the support of the Nordic Environment Finance Corporation (NEFCO) and EU funding, an academic building was converted into an energy-efficient dormitory for displaced students and staff. This initiative reduces electricity consumption by 40 % and heating by 65 %, significantly contributing to Ukraine's energy independence and demonstrating the impact of sustainable energy solutions on campus (NEFCO, 2023).

Box 11:

In 1997, the Institute of Energy Saving and Energy Management (IEE) was established at the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (NTUU "KPI"), based on the departments of power supply, thermal engineering, and energy saving, as well as the Energy Research Institute. In 1998, the Mining Engineering Faculty was integrated into the IEE. The Institute played a key role in proposing the introduction of a new specialty in Ukraine – "Energy Management".

In 1997, with the support of the European Community, the IEE established the Center for Energy Manager Training. The center's main activities include training, retraining, and advanced training of specialists in energy saving, eco-management, and energy management based on higher education.

In 2009, the university launched its Sustainable Energy Program, within which the Educational and Scientific Center "Sustainable Energy" was created. This center aims to consolidate global and national experience in the development of energy-efficient technologies, systems, and devices to enhance energy independence and environmental security at both the individual facility and regional/national levels.

The main scientific activities at the Institute of Energy Saving and Energy Management include: formulation of sustainable development energy policies, development of tools for energy saving and energy efficiency management, development and improvement of energy supply systems, strategic planning of urban underground space use, creation of resource- and energy-saving technologies in geotechnical construction and mining, development of impulse-wave rock destruction methods, engineering and automation of electrical systems, mechatronics for energy-intensive industries, research and mitigation of hazardous industrial factors arising from the implementation of new production technologies and materials.

Source: KPI (2024)

The E-principle is central to SDG 7, as it deals with the transition to clean and renewable energy sources, energy efficiency, and the reduction of carbon emissions. HEIs can promote energy-saving initiatives, reduce energy consumption in buildings through smart technologies, and encourage research in sustainable energy solutions. By adopting these practices, HEIs not only reduce their environmental impact but also serve as models of sustainability for students and surrounding communities. *The S-principle* supports SDG 7 by addressing the social benefits of clean energy, particularly in terms of improving energy access for vulnerable groups and enhancing the quality of life within university communities. Through outreach programs and community partnerships, universities can support local initiatives aimed at improving energy access in underserved areas, demonstrating their commitment to social equity and sustainable development.

In 2024, the first place possessed by Afe Babalola University (Nigeria), it has significantly enhanced its energy production since launching its Independent Power Project (IPP) in 2021. By 2022, the university expanded its energy generation through hydro and solar sources, increasing its energy supply to 5 gigajoules. This energy is entirely renewable, and the university has achieved an 85 % reduction in energy wastage. With these developments, the university is on track to fully transition to renewable energy soon (ABUAD, 2024). Second place was awarded to the National

Autonomous University of Mexico (Mexico), while third place went to the Saveetha Institute of Medical and Technical Sciences (India) (THE, 2024).

Box 12:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 7: Affordable and Clean Energy

Year	2022					2024				
Score	55.2–61.0	61.1–68.1	29.9–49.5	3.2–29.8	***HEIs in ranking***	63.4–69.1	46.4–55.2	33.5–46.3	0.1–33.4	***HEIs in ranking***
Ukraine	2	1	2	8	***13***	1	6	5	7	***19***
Czechia		1		1	***2***	1			3	***4***

Source: THE (2024)

SDG 8: Decent Work and Economic Growth

Achieving this goal is primarily realized through ***Research on economic growth and employment***. Important indicators for assessment include ***Employment practices***, which encompass: *Payment of a living wage to staff and faculty, Recognition of union and labor rights, Policy for ending discrimination in the workplace, Policies against modern slavery, forced labor, human trafficking, and child labor, Guarantees of equal rights for outsourced labor workers, Policy on pay scale equity and gender pay gaps, Measuring and tracking pay scale gender equity, Processes for employees to appeal decisions on rights and/or pay* (THE, 2024). Naturally, these practices may vary depending on the ownership structure of the HEIs. In Ukraine, for instance, salaries differ across various HEIs based on available funding. Discrimination based on gender is certainly absent, and trade unions play a role in protecting the rights of HEI personnel, though unfortunately not a decisive one.

Another key indicator is ***Expenditure per employee***, calculated by dividing the university's total expenditure by the number of employees, and then normalizing it by the regional GDP per capita (THE, 2024). ***Proportion of students taking work placements*** reflects the demand for professionals prepared by the university and is calculated as the number of students who have had employment for more than a month as part of their studies divided

by the total number of students (THE, 2024). Tracking students' trajectories is essential for this purpose, requiring the establishment of a database and, consequently, additional funding.

Proportion of employees on secure contracts is a crucial measure calculated as the proportion of HEI employees with contracts longer than 24 months (THE, 2024). Long-term contracts allow employees to save time and provide them with a sense of security.

The fundamental principle here is the *S-Principle* focuses on promoting decent working conditions for all university staff, including faculty and administrative personnel, through fair wages, job security, and opportunities for professional development. The *E-Principle* means how universities can contribute to sustainable economic growth through research, education, and innovation to develop new technologies and enhance productivity. *The G-Principle* emphasizes transparency and promoting diversity and inclusion in hiring practices.

The peculiarity of SDG 8 is that in 2024 the first three places were occupied by South Korean universities: Kyungpook National University, Yonsei University (Seoul campus), Pusan National University. Universities focus on working with students and the community to achieve SDG 8 (THE, 2024).

Box 13:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 8: Decent Work and Economic Growth

Year	**2022**								
Score	70.3	45.0–55.2	64.7–70.2	25.0–44.9	55.3–59.5	59.6–64.6	4.2–24.9	72.3	***HEIs in ranking***
Ukraine	1	2	1	7	1	1	7		***20***
Czechia			1	1	1	1		1	***5***
Year	**2024**								
Score	69.3–73.8		65.2–69.2	61.2–65.1	52.8–61.1	43.1–52.7	30.7–43.0	1.4–30.6	***HEIs in ranking***
Ukraine	1		4	2	5	6	7	7	***32***
Czechia	3		2		1		1		***7***

Source: THE (2024)

SDG 9: Industry, Innovation and Infrastructure

Universities play a significant role in achieving this goal, as the indicators highlight the connection between science, education, and business. Key indicators include ***Research on industry, innovation, and infrastructure, Patents citing university research, University spin-offs***, and ***Research income from industry***. These aspects are examined in the context of STEM (Science, Technology, Engineering, and Mathematics), medicine, and the arts, humanities, and social sciences. However, the relationship between universities, industry, and innovation is often contentious.

Firstly, achieving impactful research and innovation requires substantial financial resources, which are increasingly acquired through competitive project funding. Universities often depend on grants from governmental and non-governmental organizations, industry partnerships, and private investments to finance their research endeavors. This dependency can create disparities in the quality and quantity of research outputs, favoring institutions with better access to funding. The competition for these limited resources can lead to a focus on projects that promise quick returns on investment rather than on long-term, exploratory research that may not yield immediate financial benefits but is critical for foundational knowledge.

Secondly, the issue of competition is pressing, even with the existence of patents. While patents are meant to protect intellectual property and encourage innovation, the competitive landscape can be challenging for universities. The commercialization of research outputs often pits academic institutions against each other and against private companies, creating an environment where collaboration is sometimes sacrificed for the sake of maintaining a competitive edge.

For SDG 9, an interesting situation arises when many universities have achieved the maximum number of points – 100 (Table 2.3).

While the *E-Principle*, emphasizing environmental sustainability, can be viewed as the main principle in relation to SDG 9, the integration of *S-principle* is equally crucial. Together, they ensure that universities contribute not only to economic growth but also to social equity and environmental stewardship.

Table 2.3. Activities under SDG 9 among the TOP-3 rated universities according to THE 2024

Place / Points	University / Country	Activities under SDG 9
1 / 100	Delft University of Technology / Netherlands	Delta Futures lab: "Investments in infrastructure for transport, irrigation, energy and information & communication technology are crucial to achieving sustainable development in urbanizing deltas. The innovation and infrastructure focus of SDG 9, is therefore a central issue. Infrastructures may however also undermine the sustainability of deltas by impeding natural processes of erosion and sedimentation and can cause a decline of bio-diversity" *Source: TU Delft, 2024*
	RWTH Aachen University / Germany	The university distinctly separates its teaching and research efforts in the achievement of SDG 9, placing a strong emphasis on the importance of education. A notable feature is the use of a multidisciplinary approach. The seminar "Selected Aspects of Responsible Research and Innovation (RRI)" equips students with a broad understanding of SDGs, particularly 9, 10, 11, and 13. Additionally, the course "Discovering Innovation – Project Work Beyond Engineering" focuses on resilience in the face of environmental challenges. The "Engineering, Culture and Society" course explores the influence of culture and diversity on engineering and innovation. On the research side, the university emphasizes diversity management and inclusive work environments within engineering networks *Source: RWTH Aachen University, 2024*
	Technical University of Munich / Germany	The Sustainable Production Department was established within the university to offer solutions based on an interdisciplinary approach to achieving SDGs in the field of production. The department provides a clear definition of sustainable production as "*the creation of goods and services using processes and systems that do not cause negative environmental impacts, are energy and resource efficient, economically profitable and compatible for employees, the community and consumers*". Key focus areas include Circular Economy, Energy-flexible control of production systems, Integration of renewable energies, and Data-based investigation of production processes. As stated, "*With our research, we want to enable manufacturing companies to retrofit their*

Place / Points	University / Country	Activities under SDG 9
		industrial processes and technologies to make them more sustainable, clean and environmentally friendly" *Source: Technical University of Munich, 2024*
	TU Dresden / Germany	At TU Dresden, focus on SDG 9 emphasizes sustainable industrialization, particularly in poor countries of the global south. This involves helping countries integrate into global value chains and markets by addressing non-tariff trade barriers, such as quality infrastructure–covering areas like standardization, testing, and certification *Source: TU Dresden, 2024*
	University of Edinburgh / United Kingdom	The University of Edinburgh achieved a perfect score for its contribution to SDG 9, thanks to its research, patents, industry funding, and spinouts. In 2022/23, Edinburgh Innovations supported over 123 startups and spinouts, securing £107.6 million in investment. Research projects focused on SDG 9 generated £91.9 million in funding. An example of their innovation is Danu Robotics, a cleantech startup founded by a data science graduate. It develops automated waste sorting systems, enhancing recycling efficiency and reducing costs *Source: University of Edinburgh, 2024*
	FAU/ Germany	The university's success in achieving SDG 9 is based on industry partnerships, third-party funding and patents based on FAU research. The university has incubators to support start-ups, such as the Digital Tech Academy, the Existence network for entrepreneurs, Josephs, Zollhof and the FAU Start-up Service *Source: FAU, 2024*
	University of Stuttgart / Germany	Industry research and patents, established spin-offs, and funding from industry *Source: University of Stuttgart, 2023*
	Yonsei University (Seoul campus) / South Korea	Yonsei University's exceptional performance stems from a broad range of initiatives. Since 2017, the university has hosted the Global Engagement & Empowerment Forum on Sustainable Development (GEEF), growing into a major global event. Alongside GEEF, Yonsei implements various sustainable development programs, such as SDG-focused courses, extracurricular activities, and innovation contests. Their Workstation platform has supported over 1 100 teams and nurtured over 6 000 social innovators *Source: Yonsei University, 2024*

Place / Points	University / Country	Activities under SDG 9
2 / 99,9	Hanyang University / South Korea	Hanyang University is making significant strides towards achieving SDG 9 through its robust support for start-ups and industry-university collaboration. The university fosters innovation by supporting start-ups through the Seoul Hanyang Institute for Entrepreneurship and the ERICA Startup Education Center. Additionally, it promotes industry-university cooperation via the Seoul and ERICA industry-university Cooperation Foundations. On 2023 Hanyang University launched the "HY Meister Degree Semiconductor Advanced Course" in response to growing industry demand for specialized semiconductor education *Source: Hanyang University, 2024*
	NAUM / Mexico	–
	National Cheng Kung University (NCKU) / Taiwan	NCKU has effectively launched a collaborative effort that brings together industry, government, academia, and researchers to strengthen Taiwan's R&D capabilities, driving innovation and technological advancements *Source: NCKU, 2023*
	National Taiwan University (NTU) / Taiwan	As a result of the concerted efforts of the Office of Research and Development at National Taiwan University (NTU) and its associated units, there has been a consistent year-on-year growth in patent citations, the number of new start-ups, and research income *Source: NTU, 2022*
	Technical University of Darmstadt / Germany	Addressing global challenges such as climate change and digital transformation, the TU Darmstadt advocates for a shift from traditional one-way knowledge transfer to a more dynamic, multidirectional exchange, known as XChange. By partnering with business, civil society, politics, and culture, TU Darmstadt collaborates to develop sustainable, pioneering solutions through initiatives like the HIGHEST Innovation and Start-up Centre *Source: TU Darmstadt, 2020*
	Universidade Estadual Paulista (Unesp) / Brazil	–
	University of Alberta / Canada	At the University of Alberta, a variety of innovation incubators support students across disciplines. These include the Student Innovation Centre, a 5,000-square-foot space with workstations, 3D printers, and high-performance computing for creative projects; eHub, an entrepreneurship-focused co-working space offering funding, resources, and mentorship for student

Place / Points	University / Country	Activities under SDG 9
		ventures; The Shack, a makerspace with advanced design and manufacturing technologies like 3D printers and laser cutters; and the Elko Engineering Garage, a hands-on prototyping space equipped with tools for fabrication, metalworking, and 3D printing *Source: University of Alberta, 2024*
3 / 99,8	Osaka University / Japan	Osaka University promotes SDG 9 by broadening its co-creation network to involve a diverse group of stakeholders, including industries, local authorities, economic organizations, international entities, and citizens. This collaborative effort aims to accelerate advancements in science, technology, and academia, while also fostering the growth and development of skilled individuals *Source: Osaka University, 2024*
	Paris Sciences et Lettres – PSL Research University Paris / France	PSL Research University is a member of the European Engineering Learning Innovation & Science Alliance (EELISA), a consortium of nine European institutions across seven countries. Together, these institutions strive to establish a shared framework for advancing European higher education and research. The EELISA initiative focuses on shaping a unified model for European engineering professionals, emphasizing societal integration, inclusivity, interdisciplinary collaboration, and strong societal commitment. A key goal of EELISA is to develop a standardized European engineering degree. By achieving this, the alliance aims to educate a new generation of engineers equipped with cutting-edge technological expertise, aligned with societal needs, and committed to sustainable development objectives *Source: PLS, 2024*
	Tohoku University / Japan	Tohoku University contributes to achieving SDG 9 through a variety of specialized laboratories focused on innovation and technological advancement. These include the Obayashi & Yakeno Laboratory, the Funamoto Laboratory, the Takana Laboratory, the Nagai Laboratory, the Kobayashi & Hayakawa Laboratory, the Komiya Laboratory, and the Iga Laboratory etc. Each of these laboratories plays a key role in advancing research and fostering innovation in diverse fields, helping to strengthen the university's commitment to industry, infrastructure, and sustainable development

Source: Tohoku University, 2024

Box 14:

Comparison of University Rankings in Ukraine and the Czech Republic on DG 9: Industry, Innovation and Infrastructure

Year	2022				2024						
Score	27.9–46.9	6.9–27.8	57.6–69.8	***HEIs in ranking***	41.5–57.2	26.0–41.4	12.2–25.9	65.2–76.9	57.3–65.1	2.5–12.1	***HEIs in ranking***
Ukraine	3	12		***15***	1	6	16				***23***
Czechia	3		1	***4***	3	1	1	1	1	1	***8***

Source: THE (2024)

SDG 10: Reduced Inequalities

Universities are crucial in addressing inequality through their educational, research, and social initiatives. They can ensure equal access to quality education, foster skill development, enhance social mobility, and combat discrimination. The nature of inequalities faced by societies differs across regions. For instance, in Ukraine, access to education for girls is universally open and unproblematic. However, the ongoing war has caused and will continue to cause disparities related to injuries and disabilities. Addressing these issues will necessitate additional efforts to create an inclusive educational environment and establish conditions that support the full social integration of individuals with disabilities.

The indicators presented in this group include ***Research on reduced inequalities, Share of First-generation students, Share of Students from developing countries, and Proportion of Students and staff with disabilities*** (THE, 2024).

A separate set of indicators focuses on policies and opportunities for inclusion, such as *Non-discriminatory admissions policy, Tracking application and admission rates of under-represented groups, Planned action to recruit students and staff from under-represented groups, Anti-discrimination and anti-harassment policies, Existence of a diversity and equality committee, office or officer, Mentoring, counselling, or peer support programs aimed at students and staff from under-represented groups, Accessible facilities for people with disabilities, Support services for people with disabilities, Access schemes for people with disabilities, and*

Accommodation policy or strategy for people with disabilities, including adequate funding (THE, 2024).

Meeting these standards requires substantial financial investment, particularly for building accessible infrastructure such as ramps, restrooms, and classroom access. For individuals with visual impairments, universities must also improve their websites, provide opportunities for lecture note-taking using Braille on laptops, and ensure other supportive measures.

The *S-Principle* is central here, as it fosters social equity through inclusive admissions, accessible facilities, and support for under-represented groups, particularly individuals with disabilities. HEIs can directly address social inequalities by implementing anti-discrimination policies and promoting diversity. The *G-Principle* reinforces these efforts by ensuring transparent and accountable governance structures that uphold inclusion and equal opportunity initiatives.

In 2024, RMIT University (Australia) holds the top position in the ranking and takes a global approach to addressing inequalities "within and among countries" through a range of projects focused on sustainable communities, poverty alleviation, and more (RMIT, 2024). The University of Huddersfield (United Kingdom) secured the second position for its accelerated efforts toward achieving SDG 10, particularly through increasing the enrollment of students from developing countries (HUD, 2024). London South Bank University (United Kingdom) earned the third position, focusing on internal transformations to promote diversity and inclusion within the university (LSBU, 2024).

Box 15:

Comparison of University Rankings in Ukraine and the Czech Republic on DG 10: Reduced Inequalities

Year	2022					2024							
Score	48.3–54.7	35.7–48.2	5.2–35.5	55.1–62.4	***HEIs in ranking***	56.5–62.1	47.2–56.4	37.0–47.1	23.8–36.9	2.4–23.6	68.8–75.2	62.2–68.7	***HEIs in ranking***
Ukraine	2	7	4	2	***15***	1	7	12	8	2			***30***
Czechia		1	1	1	***3***		1		2		1	1	***5***

Source: THE (2024)

SDG 11: Sustainable Cities and Communities

Urbanization is a trend. That is why there is increasing attention today on sustainable cities and communities. In this area, universities are evaluated based on a range of indicators. As always, this includes ***Research on sustainable cities and communities*** (THE, 2024). Moreover, this also includes ***Support of arts and heritage***, which *Public access to buildings and/or natural heritage landscapes of cultural significance, Public access to university libraries, Public access to university museums, galleries or works of art, Public access to open and green spaces, Provide artistic events for members of the public, such as concerts, Record and preserve local heritage* (THE, 2024).

Additionally, ***Expenditure on arts and heritage*** plays a crucial role. It is important to note that these indicators reflect the openness of universities to society; however, two significant questions arise: safety and funding. For example, many universities have botanical gardens or mini-botanical gardens. This means that ensuring open access requires guaranteeing an adequate level of safety for both visitors and the objects of cultural and natural heritage, which may demand substantial resources for security, infrastructure maintenance, and insurance. At the same time, funding for such facilities becomes particularly relevant, as universities must balance expenditures on artistic initiatives and the provision of essential educational and research activities. In this context, universities can seek additional funding by attracting sponsors, collaborating with local communities and businesses, and obtaining grants to support cultural projects.

Sustainable practices include *Targets on sustainable commuting, Promote sustainable commuting, Encourage telecommuting, remote working or condensed working weeks, Affordable housing for students, Affordable housing for staff, Prioritise pedestrian access on campus, Work with local authorities to address planning issues, including the provision of affordable housing for local residents, Build to sustainable standards, Build on brownfield sites* (THE, 2024).

These sustainable practices reflect universities' commitment to *E-principle* and *S-principle*. By implementing targets on sustainable commuting and promoting partial telecommuting, HEIs can significantly

reduce their carbon footprint while enhancing the work-life balance of both students and staff. Affordable housing initiatives are crucial in ensuring that the university community can thrive without the burden of excessive living costs, thereby attracting and retaining talent. Additionally, prioritizing pedestrian access on campus fosters a healthier lifestyle among students and staff, while collaboration with local authorities to address planning issues can create more sustainable communities.

The University of Manchester (United Kingdom) ranks first in the rating in 2024. An example of its commitment to achieving SDG 11 is its collaboration with local authorities on the planning and development of affordable housing in the city, specifically focusing on the location and standards for constructing student housing. Additionally, the university has worked alongside a local housing association to support "naturally-occurring retirement villages" (Manchester, 2024a). Arizona State University (Tempe, USA) ranks second. Among its numerous initiatives is the innovative approach to redeveloping previously used land, where old structures are renovated into improved and more practical facilities. For instance, the university's Polytechnic campus was established on a former airbase (ASU Tempe, 2024). Holding the third position, Simon Fraser University (Canada) provides public access to its campus and SFU Museum of Archaeology & Ethnology, allowing the community to explore and engage with its facilities (SFU, 2024a).

Box 16:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 11: Sustainable Cities and Communities

Year	2022					2024					
Score	53.4–60.0	38.9–53.3	0.6–38.8	69.2–78.6	***HEIs in ranking***	44.9–56.6	33.7–44.8	12.1–33.6	71.5–78.3	64.4–71.4	***HEIs in ranking***
Ukraine	2	3	12		***17***	2	9	15			***26***
Czechia		1		3	***4***	3		1	2	2	***8***

Source: THE (2024)

SDG 12: Responsible Consumption and Production

This goal is achieved through ***Research focused on responsible consumption and production, Operational measures, Measurement of recycled waste***, and ***Publication of sustainability reports***. Universities work in this direction by developing relevant policies, such as a policy on minimizing plastic use. There may be collection points on campus for paper, batteries, and other recyclables (THE, 2024).

The implementation of these initiatives is closely tied to the *E-principle* and *S-principle* components of the ESG framework. *E-principle* demonstrates universities' efforts to minimize their ecological footprint. The *S-principle* aspect is reflected in the engagement of students and staff in these initiatives, raising awareness about responsible consumption and production. *G-principle* ensures responsible consumption and production through waste recycling monitoring and the publication of sustainability reports, promoting transparency and accountability in resource use.

In 2024, two universities from the United Kingdom share the first position – Bournemouth University and King's College London. Among its many initiatives, Bournemouth University implemented the "No Disposable Cups Week" campaign (Bournemouth, 2024). King's College London has a Centre for Sustainable Business, one of whose key areas is the practice of sustainable consumption. Additionally, university researchers explore the "paradoxes between consumerism and sustainability". The institution has also established the Net Zero Center, which is focused on waste minimization and advancing recycling processes (KCL, 2024). The second position is also held by a university from the United Kingdom – the University of Reading. Third place – Western Sydney University (Australia) (THE, 2024).

Box 17:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 12: Responsible Consumption and Production

Year	2022				2024				
Score	64.4–75.5	41.6–53.9	4.2–41.5	***HEIs in ranking***	73.1–81.4	57.7–65.4	41.1–57.4	13.7–40.9	***HEIs in ranking***
Ukraine	1	1	5	***7***	1	1	2	7	***11***
Czechia	1		1	***2***	1			1	***2***

Source: THE (2024)

SDG 13: Climate Action

The achievement of this goal involves universities actively participating in ***Research on climate action***. Alongside this, practices related to ***Low-carbon energy use*** are assessed (*Measuring the amount of low-carbon energy used and Proportion of electricity from low-carbon sources*) and ***Environmental education measures***. The latter includes evaluating indicators such *as Local education programs or campaigns on climate change, Existence of a university climate action plan shared with local government and community groups, Work with local or national governments in planning for climate change disasters, Informing and supporting local or regional governments on issues related to climate change, and Collaborating with NGOs on climate change adaptation* (THE, 2024).

Achieving these indicators can be particularly challenging, especially for specialized HEIs. This also applies to commitments to ***Carbon neutral-university***, where universities set goals for *Commitment to carbon neutrality and Achieve-by date* (THE, 2024).

Both the *E-principle* and *G-principle* are highly relevant to the achievement of SDG 13: implementing sustainable practices in campus operations, reducing carbon emissions, and adopting transparent governance models that prioritize climate-related initiatives, thereby advancing climate resilience and sustainability efforts.

The top-ranking universities in 2024 included the following trio: the University of Tasmania (Australia) (holding first place for three consecutive years), UNSW Sydney (Australia), and Simon Fraser University (SFU) (Canada). The University of Tasmania has identified four main types of activities to achieve SDG 13. Firstly, the University of Tasmania supports *research into climate change*. Postgraduate students have been involved in projects such as studying sea level rise. Through the Sustainability Integration Project for Students (SIPS), many students have contributed to climate-related initiatives impacting the university and the community. Secondly, *low-carbon energy* use is being achieved through significant investment in campus development, with the University aiming to reduce emissions in new buildings by 25 %. Energy-saving measures, LED lighting, and the elimination of natural gas in new developments are in line with its low-carbon goals. All new buildings are solar-ready. Thirdly, the University supports *environmental education* by offering over 100 climate-related courses, providing students from all

disciplines with knowledge about climate change. Fourth, *commitment to carbon neutrality*. Since 2016, the University of Tasmania has been certified as carbon neutral by Climate Active. It continues to offset unavoidable emissions. As part of the global Race to Zero initiative, it is working towards net zero emissions by 2050 (UTAS, 2024).

UNSW Sydney is highly dedicated to achieving the SDGs. UNSW's Environmental Sustainability Policy forms the core of the Environmental Sustainability Plan for 2022–2024, supported by three key themes: Climate Action, Living Campuses, and Resource Efficiency. To achieve its Climate Action goals, UNSW has identified two primary focus areas, each with specific targets and key initiatives. The first focus area, operational emissions, has set targets such as maintaining net zero operational (Scope 1 and 2) emissions and increasing onsite solar PV capacity to 1.5 MWp. To achieve these targets, the following key initiatives are planned: implement Stage 1 of the Electrification Strategy; procure 100 % renewable electricity. The second focus area, partnering for net zero, aims to reduce total (Scope 1, 2, and 3) emissions by 30 % by 2025, 50 % by 2030, and reach net zero by 2050, alongside divesting investments in fossil fuel companies. To meet these objectives, the key initiatives include completing a climate risk assessment; developing and implementing the Net Zero Strategy; maintaining the Responsible Investment Framework; maintaining the Sustainable Procurement Framework (UNSW, 2024a).

SFU has developed a focused plan, the Strategic Sustainability and Climate Action Plan, which clearly outlines goals and activities to achieve SDG 13. In addition, SFU has committed to fully divesting from fossil fuels by 2025 (SFU, 2024b).

Box 18:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 13: Climate Action

Year	2022				2024				
Score	18.7–36.4	1.8–18.6	36.5–45.5	***HEIs in ranking***	36.0–46.6	21.6–35.9	1.8–21.5	46.7–53.4	***HEIs in ranking***
Ukraine	5	5		***10***	2	5	11		***18***
Czechia			1	***1***	2			2	***4***

Source: THE (2024)

SDG 14: Life Below Water

This block includes a set of indicators focusing mainly on three areas: "marine resources, protecting coastal ecosystems and combating marine pollution". The indicators used to assess the universities' progress towards this goal are: ***Research on life below water, Supporting aquatic ecosystems through education, Supporting aquatic ecosystems through action*** (*Direct involvement in projects or partnerships that actively protect and restore marine and coastal ecosystems; Policy to ensure that seafood on campus is sustainably harvested*), ***Water-sensitive waste disposal*** (*Implementation of systems and practices that minimise the release of harmful substances into waterways; Efforts to ensure that all waste disposal methods are environmentally friendly and do not harm aquatic life*); ***Maintaining a local ecosystem*** (*Actions taken to preserve and enhance the local marine and coastal environments associated with the university; Community engagement projects that involve local stakeholders in marine conservation efforts*) (THE, 2024).

All these indicators will also reflect universities' adherence to the *E-principle*.

In 2024, first place got Arizona State University (Tempe) (USA), second place – University of Alberta (Canada), and third place – two HEIs: Aalborg University (Denmark), Florida International University (USA). Arizona State University (Tempe) (ASU) has initiatives to protect coral reefs. For example, ASU's Centre for Global Discovery and Conservation Science is leading the Allen Coral Atlas project, which uses satellite imagery to map and monitor the world's coral reefs, supporting global marine conservation efforts. ASU also works with local communities in Hawaii, focusing on coral reef restoration and coastal sustainability (ASU, 2024b). In collaboration with U.S. colleagues, researchers at the University of Alberta are studying how biodiversity will change under extreme climate conditions (UALBERTA, 2024).

Accordingly, universities in countries without direct access to the ocean focus their research on seas and rivers. For instance, Lviv Polytechnic National University (Ukraine) conducts studies under SDG 14 aimed at reducing water pollution and protecting coastal ecosystems. The university implements educational programs on water resource management and

conservation, as well as organizes initiatives that promote the sustainable use of rivers and lakes (LPNU, 2024). Taras Shevchenko National University of Kyiv (Ukraine) is actively engaged in projects dedicated to water resource preservation, including developing methods for stabilizing rivers' banks (TSNUK, 2024).

Box 19:

Comparison of University Rankings in Ukraine and the Czech Republic on DG 14: Life Below Water

Year	2022			2024		
Score	0.7–19.6	19.8–38.0	***HEIs in ranking***	10.7–39.7	1.6–10.1	***HEIs in ranking***
Ukraine	6	1	***7***	8	2	***10***
Czechia		1	***1***	2		***2***

Source: THE (2024)

SDG 15: Life on Land

SDG 15 means ensuring the sustainable management of terrestrial ecosystems, restoring biodiversity, supporting forestry practices, and preventing the degradation of fertile land into deserts.

The indicators used to evaluate universities include research and education in these areas. A significant focus is placed on the direct activities of the universities themselves, such as: ***Supporting land ecosystems through action*** (*Sustainable policies relating to land used by the university and threatened species affected by the university's operations; inclusion of local biodiversity in campus planning and development, such as the construction of new buildings; collaboration with the local community to protect natural habitats and restore ecological balance*) and ***Land-sensitive waste disposal*** (*Implementation of waste management practices that minimize impact on land and prevent habitat disruption; efforts to ensure that disposal techniques are environmentally responsible and support the overall health of the local ecosystem*) (THE, 2024).

This goal intersects with other SDGs, such as SDG 11: Sustainable Cities and Communities, SDG 12: Responsible Consumption and Production,

and SDG 13: Climate Action, highlighting the interconnectedness of sustainability efforts. By sustainably managing land ecosystems, developing environmentally responsible campuses, and implementing effective waste disposal practices, universities contribute to biodiversity restoration and sustainable, resilient communities. These efforts promote sustainable resource use, reduce environmental impact, and align with broader climate resilience and ecological balance goals.

In the context of SDG 15, the key principle is the E-Principle, as it encompasses sustainable land management, biodiversity restoration and ecosystem support. Universities focus on reducing their impact on the natural environment through responsible land management, reducing pollution, and integrating campus conservation efforts. The *S-principle* is also important, involving working with local communities to protect natural habitats and restore ecological balance. Involving local people in education and research programs helps to spread awareness and foster responsible attitudes towards natural resources. As for the *G-principle*, it plays a supporting role. Sustainable university governance should demonstrate transparency and accountability in decision-making related to environmental impact.

Box 20:

Comparison of University Rankings in Ukraine and the Czech Republic on DG 15: Life on Land

Year	**2022**			**2024**			
Score	31.1–42.9	3.2–31.0	***HEIs in ranking***	29.3–45.7	2.0–29.1	45.8–55.1	***HEIs in ranking***
Ukraine	3	7	***10***	7	10		***17***
Czechia		1	***1***		1	1	***2***

Source: THE (2024)

In the THE ranking in 2024, the University of Manchester (UK) came first, followed by the University of Tasmania (Australia), Arizona State University (Tempe) (USA) and Western Sydney University (Australia) (THE, 2024). For example, University of Manchester developed an interactive web platform (AquaPlan) designed to help farmers, businesses and governments strengthen agricultural water management and adapt to climate challenges.

It also serves as an educational tool for students and the public, raising awareness of water security and sustainable food practices. This initiative received the Making a Difference Award for its outstanding contribution to environmental sustainability and promoting a low-carbon future (Manchester, 2024b).

SDG 16: Peace, Justice and Strong Institutions

This goal is undoubtedly one of the most challenging because, despite the progress made by humanity, the frequency and brutality of wars persist. The world continues to witness tragedies that cause untold suffering and destruction. A stark example is the Russian Federation's unprovoked aggression against Ukraine – an aggression that has brought terror and pain to the lives of a nation of 40 million people. Every day, Ukrainians live under the constant threat of missile attacks and face daily danger and the loss of loved ones as they witness the killing of civilians and the destruction of cities. This war reminds us that even in the 21st century, peace is fragile and the challenges to achieving it are immense. The contribution of universities is undoubtedly made through research that will promote peace and justice. Moreover, it is important how ***University Governance Measures*** (*Initiatives to ensure transparency and accountability in university operations; Policies and procedures that uphold ethical governance and prevent corruption, including engagement with local stakeholders*) are implemented. In response to the Russian Federation's invasion, several universities and academic institutions ended cooperation with researchers who publicly supported the Russian Federation government's actions. This move was part of a global boycott campaign aimed at isolating the Russian Federation and Belarus for their aggression. It underlines the unacceptability of supporting violence and violations of international law within the academic community.

Indicators such as the following are also considered: ***Working with government*** (*Collaborations with government bodies to influence policymaking and enhance public service delivery; Participation in drafting national legislation and frameworks that promote peace and justice*) and ***Proportion of graduates in law and civil enforcement*** (*Proportion of graduates qualified to enter professions in law, civil enforcement and related fields*).

If the *G-principle* is already addressed through the above indicators, the *S-principle* means that universities should play a key role in building peaceful and just societies. This is achieved through active engagement with local communities to promote values of peace and tolerance, foster social cohesion and contribute to post-conflict reconstruction.

The first place in the 2024 ranking was held by Universiti Sains Malaysia (Malaysia), second place – by Western University (Canada), and third place was shared by Queen's University (Canada) and the University of Neuchâtel (Switzerland) (THE, 2024).

Box 21:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 16: Peace, Justice and Strong Institutions

Year	2022						2024									
Score	56.2–63.9	64.0–71.2	13.0–40.3	40.4–56.1	82.5	***HEIs in ranking***	72.7–79.6	67.0–72.6	61.9–66.8	51.3–61.8	39.6–51.2	23.7–39.3	80.1	79.9	2.8–23.6	***HEIs in ranking***
UKR	2	3	6	9		***20***	2	3	3	4	12	10				***34***
CZ	1	1	1	2	1	***6***			1	2	1		1	1	2	***8***

Source: THE (2024)

SDG 17: Partnerships for the Goals

This goal is quite broad. It includes the following indicators for evaluating universities: ***Research***; ***Relationships to support the goals*** (*Collaborations and relationships with NGOs and governments relating to the SDGs, including policy, capturing data and research and educational programmes; International collaborations to develop best practices on tackling SDGs*); ***Publication of SDG reports***, and ***Education on the SDGs***.

In this case, the *G-principle* is a main point, as the primary responsibility for achieving this goal lies with the university's governance. Effective governance ensures that university policies, decision-making processes and leadership are aligned with the institution's commitment to support the SDGs. Strong governance structures are essential for fostering partnerships, promoting transparency, and ensuring accountability.

University of Technology Sydney (Australia) got first place in 2024, Institut Agro (France) and James Cook University (Australia) – second place, and third one – Western Sydney University (Australia) (THE, 2024).

Box 22:

Comparison of University Rankings in Ukraine and the Czech Republic on SDG 17: Partnerships for the Goals

Year	2022							
Score	58.8–70.2	76.7–83.0	1.6–41.4	41.5–50.1	50.2–58.7	70.3–76.6	96.7	***HEIs in ranking***
Ukraine	2	1	17	5	3			***28***
Czechia	1		1	1		3	1	***7***

Year	2024							
Score	84.8–90.0	75.4–80.0	67.5–75.3	59.9–67.4	52.9–59.7	36.9–52.8	1.7–36.8	***HEIs in ranking***
Ukraine	1	2	1	1	4	13	23	***45***
Czechia	1		1	3	1	2	2	***10***

Source: THE (2024)

Conclusions

Achieving the SDGs is possible only through the effective implementation of ESG principles. This section highlights the strong interconnection between SDGs and ESG, emphasizing that, in most cases, a single ESG principle plays a leading role in driving progress toward specific goals. However, for some SDGs, a precise alignment with two or even all three ESG principles can be observed, underscoring the multidimensional nature of sustainable development.

While many universities are steadily advancing toward achieving certain SDGs, there are some SDGs where institutions have achieved exceptional results, making it challenging to identify distinct leaders. A notable example is SDG 9: Industry, Innovation, and Infrastructure, where 18 universities attained the highest scores, securing top positions in the ranking. Among these leading institutions, six are from Germany, with Japan, South Korea, and Taiwan each contributing two universities (Table 2.4). This success reflects the tangible benefits of investing in innovation, with European and Asian countries leading in this area.

Table 2.4. Number one ranked institution in THE 2024

SDG	University	Country	Region
SDG 1	Universitas Airlangga	Indonesia	Asia-Pacific
SDG 2	Queen's University	Canada	North America
SDG 3	JSS Academy of Higher Education and Research	India	Asia-Pacific
SDG 4	Aalborg University	Denmark	Europe
SDG 5	Western Sydney University	Australia	Asia-Pacific
SDG 6	University of Exeter	United Kingdom	Europe
SDG 7	Afe Babalola University	Nigeria	Africa
SDG 8	Kyungpook National University	South Korea	Asia-Pacific
SDG 9	Delft University of Technology RWTH Aachen University Technical University of Munich TU Dresden University of Edinburgh University of Erlangen-Nuernberg University of Stuttgart Yonsei University (Seoul campus) Hanyang University National Autonomous University of Mexico National Cheng Kung University (NCKU) National Taiwan University (NTU) Technical University of Darmstadt Universidade Estadual Paulista (Unesp) University of Alberta Osaka University PSL Research University Paris Tohoku University	Netherlands Germany Germany Germany United Kingdom Germany Germany South Korea South Korea Mexico Taiwan Taiwan Germany Brazil Canada Japan France Japan	Europe Europe Europe Europe Europe Europe Europe Asia-Pacific Asia-Pacific Latin America Asia-Pacific Asia-Pacific Europe Latin America North America Asia-Pacific Europe Asia-Pacific
SDG 10	RMIT University	Australia	Asia-Pacific
SDG 11	University of Manchester	United Kingdom	Europe
SDG 12	Bournemouth University King's College London	United Kingdom United Kingdom	Europe Europe
SDG 13	University of Tasmania	Australia	Asia-Pacific
SDG 14	Arizona State University	USA	North America
SDG 15	University of Manchester	United Kingdom	Europe
SDG 16	Universiti Sains Malaysia	Malaysia	Asia-Pacific
SDG 17	University of Technology Sydney	Australia	Asia-Pacific

Source: authors development based on THE (2024)

Overall, leadership in the Times Higher Education 2024 rankings is predominantly held by universities from Europe, which occupy 15 top positions across various SDGs, followed by the Asia-Pacific region with 14 and North America with three.

Encouragingly, countries like Ukraine and the Czech Republic are also showing significant improvements. A particularly remarkable trend in Ukraine is the substantial increase in universities adopting SDGs and being included in the THE rankings. For example, In 2024, an average of 9 more Ukrainian universities were included in the THE ranking for each SDG compared to 2022. The increase over two years (THE 2024 vs. THE 2022) for Czech universities amounted to 2 additional universities in each SDG ranking. However, it is essential to note that Ukraine's higher education system includes significantly more universities than the Czech Republic.

The most significant growth in Ukraine's representation in the rankings was observed for SDG 10 and SDG 5 (+15 universities in 2024 compared to 2022), SDG 4 and SDG 16 (+14 universities each), and SDG 8 (+12 universities). In the Czech Republic, the most remarkable progress was seen in SDG 5 (+5 universities), SDG 6, SDG 9, and SDG 11 (+4 universities each), as well as SDG 13 and SDG 17 (+3 universities each).

Additionally, the scores achieved by Ukrainian and Czech universities across nearly all SDGs are steadily rising, further validating the progress being made. These trends reflect the increasing commitment of universities in both countries to embedding SDGs into their strategic objectives and activities, thereby contributing meaningfully to global sustainable development efforts.

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PART 2.
ENVIRONMENTAL ASPECT OF ESG IN UNIVERSITIES

Chapter 3.
Green university initiatives for a sustainable future: a case study of Taras Shevchenko National University of Kyiv

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Introduction

The concept of a "green university" is a key component of sustainable higher education institutions (HEIs), encompassing teaching, research, community engagement, and campus operations. The first steps toward energy efficiency and waste reduction in HEIs emerged in the early 1990s. However, since then, the focus has significantly broadened, incorporating various aspects of university life through an increased emphasis on innovation and technology. Green initiatives have become integral to university development strategies, forming a crucial part of reporting aligned with the Sustainable Development Goals (SDGs) and Environmental, Social, and Governance (ESG) principles. Taras Shevchenko National University of Kyiv (TSNUK) has actively embraced the global trend

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of greening universities, demonstrating remarkable resilience despite the unprecedented challenges posed by ongoing the Russian Federation aggression against Ukraine. The university faces significant financial constraints, yet attempts to build green campus initiatives. In addition, the destruction of buildings due to shelling and the high staff turnover further complicate its efforts. Nevertheless, TSNUK remains committed to sustainability, prioritizing green initiatives as a strategic response to align with SDGs.

"Green University" Concept

The concept of a "green university" is a relatively new approach to higher education that has quickly gained popularity and become one of the priority areas of development for universities. Currently, more than 1,000 universities worldwide actively participate in the Higher Education Sustainability Initiative (HESI), which fosters sustainable development efforts in collaboration with various United Nations entities (UN, 2024). This involvement demonstrates that universities are focusing not only on enhancing the quality of education but also on achieving a competitive edge by cultivating environmentally sustainable campus environments. Additionally, it is important to recognize that sustainability investments can yield long-term advantages for universities, including notable cost savings over time (Atici et al., 2021).

In this chapter, the "green university" concept will be examined across four dimensions: campus operations, teaching, research, and community engagement (Fissi et al., 2021). The integration of the "green university" concept is illustrated in Figure 3.1.

Campus initiatives of HEIs are crucial not only for reducing their environmental footprint but also for cultivating a culture of sustainability within their communities. These initiatives play a key role in shaping "green" knowledge, behavior, and attitudes among three essential groups:

1. *Students as future leaders and policymakers*. By embedding sustainability principles into campus operations and student life, HEIs equip students with the tools and mindset to prioritize environmental stewardship in their professional and personal lives.

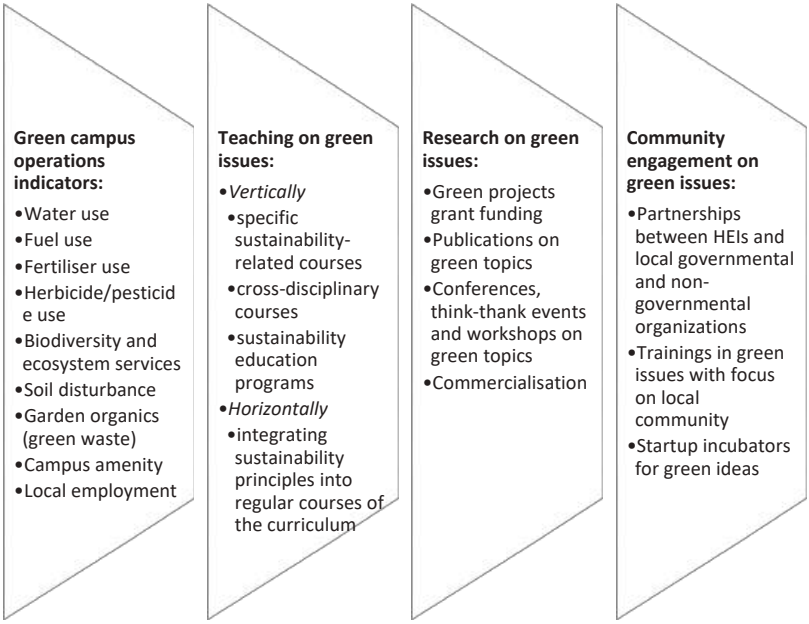

Fig. 3.1. Dimensions of green university

Source: created based on Fissi et al., 2021; Stough et al., 2018; UNEP, 2014, p. 41–42

2. *Faculty as role models*. Faculty set an example for students and the broader academic community through their teaching and research. By integrating green practices into everyday actions, they demonstrate the feasibility of sustainability and actively promote the dissemination of knowledge about green initiatives.

3. *Administrative staff as facilitators*. Administrative personnel are critical in operationalizing sustainability within campus infrastructure and services. Their actions directly impact the efficiency and effectiveness of green initiatives, from energy management to waste reduction, ensuring that sustainability is a core component of institutional practices.

Through these efforts, HEIs not only contribute to environmental preservation but also foster a generation of sustainability-minded individuals capable of driving global change.

Green initiatives on campus typically include (Leal Filho et al., 2019; Fissi et al., 2021):

- *Green building* involves the design, construction, maintenance, renovation and demolition of buildings based on sustainability principles. This includes improving energy efficiency, using renewable energy sources (use of solar panels and wind turbines) and incorporating non-toxic and environmentally sustainable materials (creating green roofs to improve the microclimate) (Fernández et al., 2023).
- *Waste management* involves the processes of collecting and handling different types of waste generated across campus. This includes materials such as office waste (e.g., paper, folders, and printer cartridges), furniture, laboratory and clinical waste (chemicals, equipment, wastewater), food waste from canteens, and general waste.
- *Sustainable procurement* focuses on acquiring goods and services that align with eco-friendly public procurement standards. The goal is not merely to select the least expensive options but to prioritize products and services that are produced responsibly, minimizing environmental harm to the greatest extent possible.
- *Sustainable mobility*, which means ensuring that both business travel and the commuting of staff and students is cheaper and more environmentally sustainable (for instance, encouraging the use of bicycles, electric vehicles, public transport and car sharing). This area also includes accessibility for disabled people.

Teaching on green issues include two interconnected levels. The vertical level involves the development of specific sustainability-focused courses or cross-disciplinary programs, culminating in comprehensive sustainability education programs. The horizontal level integrates sustainability principles into regular curriculum courses by embedding topics related to green issues. For example, sustainability concepts can be introduced into courses like “Marketing” (e.g., exploring green marketing strategies), or “Engineering” (e.g., designing energy-efficient systems). This approach ensures a broader reach across disciplines, making sustainability a fundamental part of diverse fields of study.

Research on green issues are not limited to environmentally focused studies; their highest expression lies in the practical implementation of

findings. The following sections will present specific examples of applied research conducted at TSNUK.

Community engagement on green issues represents a vital dimension of a university's role in addressing societal challenges. Modern universities have increasingly embraced collaboration with external agencies and stakeholders, fostering greater societal involvement. This shift, often described as the "third mission" (Benneworth & Jongbloed, 2009), reflects a strategic evolution in the relationship between higher education institutions (HEIs) and their surrounding communities.

In the context of green university initiatives, community engagement encompasses several key areas. Firstly, partnerships with governmental and non-governmental organizations to address environmental challenges, share knowledge, and implement sustainable practices. Secondly, training on green issues, when universities offer specialized training programs focused on sustainability topics, aimed at raising awareness and building capacity within local communities. Thirdly, universities can establish incubators to support innovative green projects, fostering entrepreneurship and driving practical solutions to environmental issues.

Green Campus Initiatives

When any kind of initiatives undertaken by Ukrainian HEIs are considered, the current situation is significantly impacted by the aggression of the Russian Federation against Ukraine. Due to frequent missile and UAV (Unmanned Aerial Vehicle) drone attacks targeting Ukraine's energy and civil infrastructure, many projects are focused on achieving energy independence, reducing energy consumption, and integrating renewable energy sources. These efforts aim to enhance resilience against electricity cutoffs and blackouts while promoting sustainable energy use. The first total blackout occurred on November 23, 2022, leaving Kyiv residents without electricity, water, heating, mobile communication, and internet access for over 15 hours. In some areas of Kyiv, power outages exceeded 50 hours (Mind.ua (n.d)). Since then, rolling blackouts have been implemented to stabilize the power grid. It has become common in Kyiv to experience 4–8 hours without electricity, although water and heating remain available.

Meanwhile, numerous projects have been initiated to establish spaces for remembrance and psychological relief, providing support to students, faculty, and administrative staff deeply affected by the ongoing war.

The first initiative to highlight is the "Place of Silence", which, at first glance, may appear to be a typical green project–a cluster of trees providing oxygen, shade, and landscape design near the city center. However, it is much more than a new green area; it carries profound symbolism and serves essential ecological and psychological purposes. This initiative can be classified as both a campus amenity and a contribution to biodiversity and ecosystem services. The symbolism of this space is particularly significant, serving as a poignant reminder that the best representatives of the university community stood up to defend their country. The "*Place of Silence*" *is a memorial dedicated to the students and cadets of TSNUK who sacrificed their lives for Ukraine*. The space is located in the Central Campus, within the park surrounding the main academic building, and features young thuja and viburnum trees. Viburnum (known as *kalyna* in Ukrainian) holds deep cultural significance. According to tradition, planting *kalyna* brings health and good fortune, while its red berries symbolize Ukrainian nationhood and independence (Arboretum, n.d.). The trees were planted through the collective efforts of students, cadets, and faculty, further emphasizing the unity and resilience of the TSNUK community (Fig. 3.2).

This initiative, known as the "Place of Silence", was fully conceptualized and implemented through the collaborative efforts of the TSNUK administration, the KNU Botanical Garden, the Department of Plant Biology, the Student Parliament of TSNUK, and the Virtual Memorial to the memory of the fallen students, faculty, staff and graduates (TSNUK, n.d.). By the end of 2024, the TSNUK community had mourned the loss of over 100 students, faculty, staff, and graduates. To honor these profound losses, the Virtual Memorial preserves detailed profiles of the fallen and advocates for their lasting recognition. Among these tributes is the renaming of a street in Kyiv after Yuliia Zdanovska, a student of the Faculty of Mechanics and Mathematics at Taras Shevchenko National University of Kyiv. Yuliia, a promising mathematician with the potential to make groundbreaking discoveries, was killed by the Russian Federation.

Fig. 3.2. "Place of Silence"

"Place of Silence" has become a powerful symbol of remembrance, representing the enduring spirit of the university's youth, whose resilience and courage have transcended the hardships of war. It stands as a space of gratitude, embodying the highest ideals of "Utility, Honor, and Glory".

Another notable initiative was carried out by students of the educational programs "Landscape Design and Decorative Gardening" (bachelor level) and "Urban Landscape Designe" (master level) in collaboration with staff from the Department of Plant Biology. Together, they contributed to a project aimed at improving the courtyard of the Ukrainian Physics and Mathematics Lyceum of Taras Shevchenko National University of Kyiv. This initiative aligns with the categories of Biodiversity, Ecosystem Services, and Campus Amenities. The project involved developing original design proposals that enhanced the area's aesthetic appeal, promoted psychological relief for students, and fostered ecological thinking. The designs achieved this by harmoniously combining active zones with spaces for relaxation (TSNUK, 2024a).

The third initiative to be considered is the modernization of Centers for Collective Use of Scientific Equipment (CCSEE), a project supported by the

Ministry of Education and Science of Ukraine. In 2024, TSNUK was among 19 centers selected through a competitive process to receive funding for implementing energy-efficient solutions. These measures aim to reduce energy costs and ensure the uninterrupted operation of scientific equipment, even during energy crises. This project falls under the Fuel Use and Campus Amenity categories of Campus Initiatives, focusing on the procurement and integration of alternative energy supply systems and equipment modernization and maintenance. Key components include the installation of solar panels, electrical energy storage systems (batteries), hybrid inverters, BMS controllers, and other devices essential for ensuring smooth operation. The initiative also involves adding new modules and systems to improve equipment efficiency and addressing the need for spare parts for technically worn or damaged equipment. Additional upgrades include sample preparation devices, optical and mechanical components, 3D printers, and networking facilities, collectively enhancing campus infrastructure and scientific capabilities.

TSNUK is home to numerous historic buildings of significant cultural and architectural value. These structures not only represent the rich heritage of the university but also pose unique challenges and opportunities when integrating sustainability initiatives, as preservation efforts must balance modernization with respect for historical integrity (Fig. 3.3).

Despite the inherent challenges of greening older university buildings, several strategies can be employed to effectively incorporate sustainability. Conducting comprehensive energy audits helps identify areas where improvements are needed, enabling targeted retrofitting of critical components such as windows, insulation, and HVAC (Heating, Ventilation, and Air Conditioning) systems to enhance energy efficiency. Integrating renewable energy solutions, such as solar panels, adds to energy independence while reducing environmental impact.

Water conservation measures, including low-flow fixtures and rainwater harvesting systems, can address inefficiencies in water usage. Repairs and renovations should prioritize the use of sustainable materials, aligning with broader environmental goals. Pursuing certifications provides a structured framework for implementing sustainable practices and benchmarks for success.

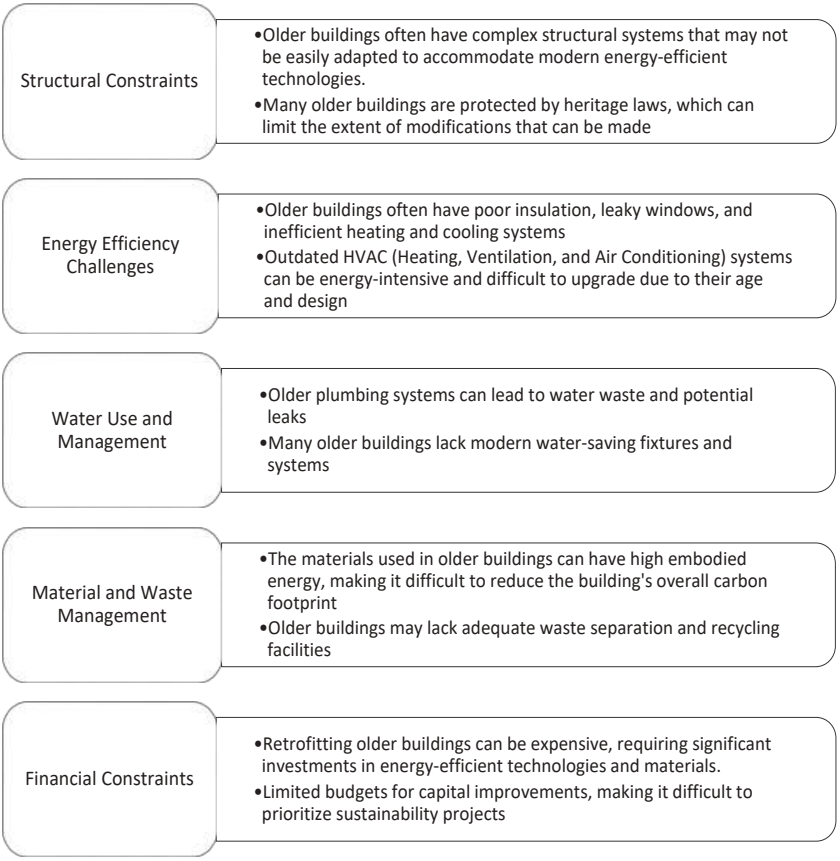

Fig. 3.3. Challenges of greening historic university campuses

Encouraging behavioral change among building occupants, such as promoting energy-saving habits and responsible water use, complements physical upgrades. To fund these initiatives, innovative financing mechanisms, such as energy performance contracting, can be explored, ensuring that sustainability goals remain achievable despite financial constraints. Through these measures, older university buildings can transition into environmentally sustainable spaces while preserving their historical significance.

Teaching on Green Issues

Teaching initiatives can be related to both the research and community engagement lines of the "Green University" concept. However, their contribution to campus operations is often less visible.

Erasmus+ project KA220-HED "Green roofs in higher education institutions as sustainable research centers for engagement, environmental awareness and O2 production" (GREENO2) in addition to its research component, also covers the teaching dimension on green issues. As a result of this initiative, several teaching goals were fulfilled. English-language training course on ecology and sustainable development, which will become an open educational online resource on the Open Education platform. The course will help participants understand the importance of green roofs and assess their benefits, challenges, threats, and sustainability. Students will be able to analyze the need for professional green roof design for their universities and critically evaluate their typology and diversity. The GREENO2 mobile application will be created as an interactive tool for virtual training and promotion of green roof practices as an additional outcome of the project. The app will allow for broader use of the GREENO2 digital toolkit and its materials, such as a new textbook created by one of TSNUK participants (TSNUK, 2024e).

Another project is Erasmus+ KA2 level (higher education capacity building) DOMANI project – Developing Micro-credentials Ecosystems in Ukraine and Mongolia for Competitive and Resilient Green Economies. This project is led by the Estonian University of Natural Sciences, with a consortium of partners, including TSNUK alongside the National Agency for Quality Assurance in Higher Education of Ukraine, V. N. Karazin Kharkiv National University, the Ukrainian Hydrometeorological Society, and partners from Italy, Estonia, Hungary, and Mongolia. The initiative's main idea is to build an educational partnership between participants to launch micro-qualification ecosystems in Ukraine and Mongolia for a competitive and sustainable green economy.

One more notable initiative involves third-year students majoring in "Landscape-Gardening Farm" who actively participated in field research and practical classes across various locations in Kyiv. As part of the "Greening Urban Areas" course, these students conducted in-depth examinations of

green spaces in the city's historic districts, explored innovative strategies for greening public spaces, and analyzed modern methods for developing green infrastructure. This hands-on approach not only enriched their academic experience but also contributed valuable insights to the sustainability and improvement of Kyiv's urban environment.

As part of the “Phytopathology” course”, students conducted monitoring of the sanitary and phytopathological condition of plantings in various locations, including Shevchenko Park, Mariinsky Park, Volodymyrska Hill, and the courtyard of the university's main building. Collected samples were analyzed in the laboratory to identify plant diseases and their underlying causes. This initiative aligns with the categories of biodiversity, ecosystem services, and soil disturbance within the broader scope of Campus Initiatives (TSNUK, 2023). By combining fieldwork with laboratory research, the project not only contributes to the ecological health of urban green spaces but also enhances students' practical skills and ecological awareness, fostering a deeper understanding of sustainable plant management practices.

Research on Green Issues

Research initiatives are often closely interconnected with other components of green university concept. Theoretical findings derived from research can frequently be adapted and scaled to enhance campus infrastructure or integrated into teaching practices. TSNUK is actively engaged in numerous international and local research initiatives. These initiatives demonstrate the university's capacity to bridge scientific exploration with practical applications, contributing to its broader sustainability goals.

The first initiative is Erasmus+ project KA220-HED “Green roofs in higher education institutions as sustainable research centers for engagement, environmental awareness and O2 production” (GREENO2). This project is coordinated by the University of Tuscia (Italy), while TSNUK (Ukraine) alongside with the University of Cadiz (Spain), Pantheon University of Social and Political Sciences (Greece), University of Social and Media Culture in Toruń (Poland), and three research and consulting organizations Xenios Polis Culture, Science and Action (Greece), LIM Srl Unipersonale (Italy), SG Gripen Europe s.r.l. (Romania) are partners (Fig. 3.4).

Fig. 3.4. GREENO2 meeting

This initiative focused on exploring technologies for implementing green areas on university rooftops, designed to create comfortable spaces for study and recreation. The Universities of Cadiz and Tuscia have already gained practical experience in this field, serving as valuable references for similar projects. Green roofs offer significant advantages, including the potential to reduce energy consumption by normalizing heat exchange throughout the year. Additionally, rooftops, which are often underutilized spaces, can be transformed into multifunctional areas. These spaces provide benefits such as recreation zones for students and staff, as well as biodiversity laboratories that support environmental research and sustainability education (TSNUK, 2024b).

Another notable research initiative from a TSNUK faculty is the project led by Serhii Kondratenko, Professor of the Department of Optics at the Faculty of Physics. His work focuses on the development of flexible substrate solar panels, which can be easily applied to various surfaces. For instance, these innovative panels could transform walls into energy generators without the need for additional mounting attachments, opening up new opportunities for green energy solutions. Currently, the research team is in the process of developing and testing laboratory prototypes. These

advancements pave the way for the potential establishment of domestic production in Ukraine, contributing to the growth of renewable energy technologies and fostering energy independence (TSNUK, 2024c).

Several projects and initiatives have spearheaded by the GreenLabsKNU Center for Sustainable Solutions. Among them, the Faculty of Geography at TSNUK is actively engaged in various environmental initiatives, including the installation of bat houses and participation in the National Forest Inventory of Ukraine. These projects aim to expand the university's research capabilities in key areas of environmental study. Furthermore, they are practical applications of sustainability principles, bridging research efforts with on-campus implementation. Such initiatives enhance the university's ecological footprint and provide valuable opportunities for experiential learning and practical engagement for students and researchers (TSNUK, 2024d).

Community Engagement on Green Issues

Most of the initiatives related to this aspect of the “Green University” concept have been discussed in previous sections, as it is rare for initiatives to be explicitly designed to enhance community engagement.

One notable exception is “Place of Silence”, which stands out as the most symbolic and meaningful initiative. This project serves as a poignant reminder that the best representatives of the university community rose to defend their country. It embodies the shared respect and gratitude of every member of TSNUK’s community for the heroes who made the ultimate sacrifice during the Russian Federation’s invasion of Ukraine (Arboretum, n.d.).

Another mentioned initiative will be GREENO2. As a part of this project GREENO2 MOOC (massive open online course) was developed. It can be used for both locals and governmental entities to train new experts and share existing knowledge. Also, mobile application can be used as a part of community cooperation and networking, adding territory diversification and experience spread (TSNUK, 2024e).

And the last to mention is Erasmus+ DOMANI project. This initiative can be considered as the only one directly aimed on Community Engagement, showing and improving possible partnerships between HEIs and local governmental and non-governmental organizations. Also, the planed outcome, micro-qualification ecosystems in both Ukraine and Mongolia for

a competitive and sustainable green economy, can be considered as a part of trainings in green issues implementation with focus on both local and global communities.

TSNUK is enlarging its presence in different green oriented community engagement initiatives and is always ready to adopt some research or teaching projects.

Conclusions

Taras Shevchenko National University of Kyiv actively incorporates the principles of a green university across all four dimensions: green campus, teaching, research, and community engagement. Three key aspects deserve particular attention. First, the case of TSNUK exemplifies the effective integration of sustainable development principles through international projects, showcasing a successful adaptation of the "Green University" concept. Second, the implementation of faculty research advancements in energy efficiency has been integrated into the development of TSNUK's green campus. Third, the university demonstrates a unique combination of social and environmental initiatives, exemplified by the creation of "Place of Silence".

This experience highlights TSNUK's resilience during wartime, as the university continues to align its educational and research activities with sustainability objectives. By combining education, scientific inquiry, and sustainable practices, TSNUK serves as a meaningful example for advancing environmental and social sustainability in higher education.

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Chapter 4.
Integrating environmental sustainability into education and practices of Chernihiv Polytechnic National University

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Introduction

Under global environmental challenges, universities are positioned to lead the way in implementing sustainable practices and fostering ecological responsibility. Integrating environmental considerations into university activities is an essential aspect of the ESG approach, which seeks to create resilient institutions capable of adapting to and mitigating contemporary ecological crises. By embedding sustainability into their strategies, operations, and educational initiatives, universities can contribute to reducing their environmental footprint and cultivating future leaders equipped to address environmental issues.

This chapter examines the environmental dimension of university activities within the framework of the ESG approach, focusing on how universities can ensure resilience through ecological initiatives. Specifically, it highlights the experiences of Chernihiv Polytechnic National University. This university serves as a compelling case study for understanding how ecological innovation and community engagement can transform university campuses into sustainable ecosystems and centers for ecological expertise.

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The university concentrates on creating energy-efficient campuses, demonstrating the potential of sustainable infrastructure to reduce energy consumption and promote resource efficiency. By integrating cutting-edge technologies, renewable energy sources, and energy-saving measures, the universities not only decrease their operational impact on the environment but also set a practical example for other institutions.

On the other hand, the university has focused extensively on preparing ecology specialists, emphasizing education's role in fostering a new generation of environmental leaders. The university equips students with the knowledge and skills to address pressing environmental challenges through interdisciplinary programs and research initiatives. This approach aligns with the ESG framework's emphasis on the social component, where education is critical in advancing sustainable development goals.

The university has also engaged with its surrounding communities to promote environmental awareness and foster partnerships for sustainability. Public outreach initiatives, including workshops, ecological campaigns, and collaborative projects, serve to bridge the gap between academic institutions and society. These efforts highlight how universities can act as hubs for ecological innovation and public engagement, driving progress in achieving broader sustainability goals.

Green Campus

Between 2022 and 2024, Chernihiv Polytechnic National University faced severe challenges due to missile and bombing attacks, resulting in repeated damage to its academic buildings and dormitories. The destruction included shattered windows and doors, damage to walls and roofs, and the loss of centralized heating during the winter of 2022, which caused the heating system in three buildings and a dormitory to fail. The university's infrastructure has been restored with a focus on energy efficiency, guided by an energy audit conducted following the European Parliament and Commission Directive 2010/31/EU on the energy performance of buildings, dated May 19, 2010. The audit identified critical areas for improvement (DSTU ISO 50002:2016, 2016):

1. Enhancing insulation for walls and windows. The university buildings' walls, damaged by debris, currently exhibit low thermal insulation

properties, with an average heat transfer coefficient of 1.10 W/m²K. The application of 10 cm thick mineral wool insulation on the external walls is projected to reduce the heat transfer coefficient to 0.33 W/m²K, aligning with regulatory standards (DSTU B EN ISO 13790:2011., 2011; DSTU B V.2.6-101 ISO:2010, 2010) and decreasing heat loss by 16.7 %.

2. Insulating flat roofs. Most flat roof areas lack insulation, with the combined roof and ceiling structure currently showing a heat transfer coefficient of 1.12 W/m²K. By applying 25 cm thick mineral wool insulation, the coefficient will be reduced to 0.16 W/m²K, in compliance with regulatory requirements (DSTU B EN ISO 13790:2011., 2011; DSTU B V.2.6-101 ISO:2010, 2010), resulting in a 17.4 % reduction in heat loss.

3. Replacing damaged wooden windows with modern metal-plastic ones. The energy audit before 2022 showed an average heat transfer coefficient of 1.99 W/m²K for the existing windows. Installing double-glazed, argon-filled energy-saving windows (4i-14Ar-4-14Ar-4i) has reduced this coefficient to 1.10 W/m²K, in line with current standards. Similar improvements (DSTU B EN ISO 13790:2011., 2011; DSTU B V.2.6-101 ISO:2010, 2010) were achieved by replacing damaged wooden doors with metal-plastic ones, collectively reducing heat loss by 11.7 %.

4. Modernizing the heating system. Radiators and most thermal distribution pipes were replaced, hydraulic balancing was performed, and thermal distribution pipes were insulated. Additionally, thermostatic regulators were installed (EN 15316., 2013), contributing to a 5.6 % increase in energy efficiency.

5. Upgrading the ventilation system. Installing ventilation openings in windows and exhaust devices with heat recovery systems has resulted in energy savings of 11.2 % for heat and 18.4 % for electricity while also reducing indoor noise levels (DBN V.2.5-67:2013, 2013).

6. Implementing energy-efficient lighting. Transitioning to LED lighting fixtures reduced electricity consumption by 60 kW. The installation of motion sensors and dimmer switches further decreased electricity use by 44.2 kWh/year (EN 15193, 2019).

These energy efficiency measures have also had a significant environmental impact, reducing annual CO_2 emissions by 283.7 kg.

Renewable energy research has been a strategic focus for Chernihiv Polytechnic National University, with several projects since 2011 aimed at improving semiconductor converters for photovoltaic power stations. These initiatives were conducted in collaboration with international institutions, including Tallinna Tehnikaülikool (Estonia), Hochschule Bonn-Rhein-Sieg (Germany), Politechnika Gdańska (Poland), Wrexham Glyndŵr University (United Kingdom), and Universidad de Extremadura (Spain). Key findings have been published in numerous scientific works (Husev, et al., 2015; Tytelmaier, et al., 2016; Husev, et al., 2019; Voytenko, et al. 2015; Roncero-Clemente, et al., 2013; Prystupa, et al., 2022).

A 5 kW solar power station was installed on the roof of the university's third building as a research facility, showcasing the institution's commitment to integrating renewable energy solutions into its operations (Fig. 4.1).

By addressing immediate infrastructure needs and long-term sustainability goals, Chernihiv Polytechnic National University demonstrates resilience in the face of adversity while aligning with the ESG approach to create a sustainable and energy-efficient campus.

Fig. 4.1. Photovoltaic power station at Chernihiv Polytechnic National University

During the military actions in the spring of 2022, the photovoltaic power station charged communication devices for local residents. At the same time, in the context of frequent power outages caused by significant destruction of energy infrastructure, the station's capacity proved insufficient to supply electricity to the university's critical facilities.

To enhance the reliability of the university's power supply, an energy storage system, Tesla Powerwall, was installed with the support of the governments of Ukraine and Poland. This system is a critical addition to the existing infrastructure, ensuring greater resilience in the face of ongoing energy challenges (Fig. 4.2).

Fig. 4.2. External view of the Tesla power wall system and information application

Currently, Chernihiv Polytechnic National University operates a Tesla Powerwall energy storage system with a capacity of 54 kWh. This system provides power for servers essential to supporting online educational processes and the university's automated management system. After the war, the Tesla Powerwall system is expected to play a critical role in optimizing energy costs in a dynamic electricity tariff environment. It will store energy during periods of low tariffs and utilize the stored energy during peak load times, significantly reducing electricity expenses (Fig. 4.3).

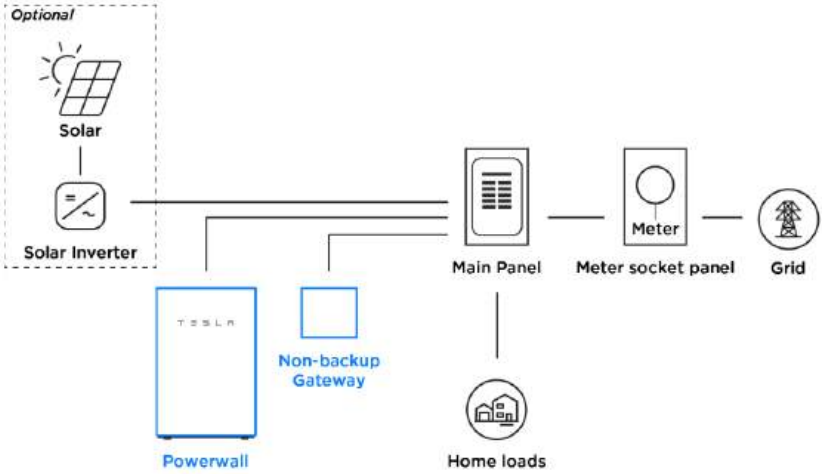

Fig. 4.3. Structural diagram of the Tesla power wall connection

To enhance the university's energy independence, efforts are currently underway to increase the capacity of the photovoltaic power station at Chernihiv Polytechnic National University to 30 kW. This initiative is supported by the Ministry of Education and Science of Ukraine and GiZ. The university has also accumulated valuable experience integrating renewable energy sources into autonomous energy supply systems. Notably, the implementation of a monitoring station for the Dnipro River, carried out between 2017 and 2019, was a part of the Eastern Partnership program co-financed by the European Union (Prystupa, et al., 2022). The university organizes various educational initiatives to popularize renewable energy within the Chernihiv community. It has installed art installations on campus (Fig. 4.4) to engage the public and raise awareness about sustainable energy solutions.

Chernihiv Polytechnic National University actively promotes energy-efficient technologies across various sectors of daily life by implementing a range of educational projects with financial support from the EU. Notable initiatives include the Erasmus+ international projects UNICITIES, which focuses on unlocking the transformative potential of Ukrainian

universities for building climate-neutral and sustainable cities, and BRIDGE, which aims to bridge the gap between academia and industry by developing an innovative master's program supporting green jobs and digital skills in Ukraine's construction sector (UNICITIES, 2021; The BRIDGE Project, 2021).

Fig. 4.4. Art installation “Energy Tree”

As part of these projects, the university conducts training sessions, workshops, and summer schools, providing students from disciplines such as Ecology, Architecture and Urban Planning, Environmental Economics, Civil Engineering, Electrical Engineering, and Software Engineering with opportunities to learn about best practices and enhance their skills in using modern technologies for real-world projects.

One notable example was a summer school in July 2024, where students worked on a project to rebuild a student dormitory and its surrounding area using sustainable urban principles. Mentors and consultants included architects, ecologists, and engineers from Spain, Chile, and Sweden (UNICITIES, 2024).

Since September 2024, Chernihiv Polytechnic National University, as part of the WIN2EDIH consortium, has secured funding to establish a digital innovation hub. This hub will be integrated into the pan-European network of innovation hubs (European Digital Innovation Hubs, 2020), offering services to small and medium enterprises and startups to implement modern energy-efficient technologies and improve digital skills to support sustainable development.

Promoting green transportation is another crucial step toward achieving campus sustainability. During the war, significant fuel shortages impacted mobility for the Chernihiv community. To address this, the NGO Ekomisto, comprised of students and alumni from Chernihiv Polytechnic, launched the "Bike Kitchen" project (Ekomisto, 2023) as part of the international initiative #BikesForUkraine. This project involved setting up a bike repair workshop on campus, where dozens of bicycles imported from Europe were repaired and donated to the Chernihiv community.

In addition to traditional bicycles, the university is fostering the development of electric vehicles. The "Bayka" startup (Bayka Bikes, 2021), which has joined the Ukrainian Association of Electromobility, showcases its products at international exhibitions and has already produced more than 1,500 models. The campus now features convenient parking spaces equipped with charging stations to support this green transportation initiative.

Students of Chernihiv Polytechnic National University developed the charging devices, which can power batteries from 12 to 96 volts. These facilities enhance the campus infrastructure and promote the widespread adoption of green transportation (Fig. 4.5).

A key aspect of sustainable development at Chernihiv Polytechnic National University is reusing and recycling waste on campus. In collaboration with the NGO Ekomisto, the university is implementing the Plastic Fantastic project (Ekomisto, 2021).

Fig. 4.5. Charging and parking station for portable electric transport

As part of the project, educational activities are organized for children to raise awareness about sustainability and the importance of recycling.

Additionally, a creative workshop operates on campus, where various items are crafted from recycled plastic, showcasing the potential of turning waste into functional and artistic products (Fig. 4.6). Through these initiatives, Chernihiv Polytechnic continues to integrate sustainability into campus life, fostering environmental responsibility within the university community and beyond.

Fig. 4.6. Results of the Plastic Fantastic Project

In addition to plastic recycling, the creative workshops at Chernihiv Polytechnic National University also focus on repurposing wood and metal. Startups developed in these workshops were presented this year at the Way to Success startup competition, an annual event hosted by the university.

Chernihiv Polytechnic is actively involved in numerous educational, scientific, and social initiatives as part of the "University in the Life of the Region" program. These activities not only significantly reduce the university's environmental impact but also serve as practical examples of sustainable solutions for students, empowering them to apply these practices in their future endeavors. These initiatives contribute to resource conservation, reduce campus financial expenditures, and enhance its appeal and comfort for all university community members.

Fostering Environmental Awareness

Global problems always have their individual dimensions. In this context, it is urgent and essential to foster environmentally conscious thinking among current and future generations – every decision and activity must have an ecological foundation. To achieve this, it is necessary to develop environmental competencies, skills, and abilities at all stages of education: preschool, school, extracurricular, vocational, and higher education. The outcomes of applying these competencies include:

1. A qualified assessment of the environmental impact of activities.
2. Minimizing the use of raw materials and energy, waste generation, and all forms of pollution.
3. Choosing optimal solutions from an ecological and economic perspective.
4. Conducting a critical analysis of the consequences of actions and inactions, both in the short and long term, including their impact on human health.
5. Understanding the priority of actions aimed at improving the state of the environment, among other outcomes.

Environmental competencies form the foundation of a person's safe existence in today's urbanized world, where most of the population resides in cities. Preparing citizens with a high level of environmental knowledge,

awareness, and culture, based on new criteria for evaluating the relationship between human society and nature, has been identified in the Concept of Environmental Education as one of the main tools for addressing the acute environmental and socio-economic problems facing modern Ukraine (Cabinet of Ministers of Ukraine, 2001).

The urban environment creates a set of negative factors that impact humans and pose risks to their health. These factors include air pollution, poor-quality drinking water, significant amounts of household and industrial waste, noise pollution, and electromagnetic fields. In this regard, a standardized assessment of environmental risks in cities, considering both the direct impact of ingredient and energy pollution and its indirect effects on potentially hazardous sources, becomes critically important.

As part of the TEMPUS project "Establishing Modern Master-level Studies in Industrial Ecology," environmental experts at Chernihiv Polytechnic National University developed and implemented a methodology for assessing the ecological condition and risks of technonatural systems as human habitats. As a result of this project, a master's program in Environmental Economics and Natural Resources, specializing in "Industrial Ecology," was launched. Today, the university offers a bachelor's program in Ecology and a master's program in Environmental Safety.

An innovative approach to achieving sustainable development involves the formation of climate-neutral city concepts. One of its components must include the monitoring of factors that ensure comfortable living conditions for humans. Chernihiv Polytechnic National University, in partnership with leading European and Ukrainian universities, is working on this concept within the framework of the Erasmus+ KA project (Project 101083099 – UNICITIES): Unlocking the Transformative Potential of Ukrainian Universities Towards Climate-neutral and Sustainable Cities (Chernihiv Polytechnic National University, 2023).

Currently, an interdisciplinary educational module, "Smart Cities and Climate Adaptation and Mitigation Strategies", has been developed and integrated into the curricula of master's programs such as Environmental Safety, Environmental Economics and Natural Resources, Electrical Power Engineering, Electrical Engineering, and Electromechanics, and Computer Engineering.

The formation of environmental consciousness cannot be fully ensured through formal education alone. Non-formal education also plays a vital role in providing comprehensive environmental competencies for informed individuals. Chernihiv Polytechnic National University is actively developing non-formal education courses as part of the "Ukrainian-German Teaching Network for a Digital Transformation of Environmental Education" project. This initiative will include training on the methodology for assessing the ecological risks of technonatural systems developed by university experts.

The developed methodology includes an analysis based on two subsystems (Fig. 4.7).

Applying comprehensive environmental protection measures at sources of pollution formation can produce a positive synergistic ecological effect across nine components (SEE 1-9) in ensuring the environmental safety of technonatural systems. The unification of an integrated assessment of technogenic impacts on technonatural systems is aimed at monitoring the ecological safety status of both biotic and abiotic components of the environment. It also includes technological safety evaluations for potentially environmentally hazardous objects.

The project's implementation facilitated constructive inter-university collaboration, expanded the academic network, and provided new experiences for instructors of environmental disciplines, fostering professional development and broadening the audience. The use of the Moodle distance learning system allowed for the creation of a shared educational space, enabling students and instructors to choose from various courses, exchange their findings, and refine teaching methodologies.

In partnership with collaborators, a platform for electronic courses based on the Moodle system was developed and successfully launched. This serves as a vivid example of inter-university cooperation, where instructors not only master modern tools for digital teaching and learning but also create, publish, and adapt their electronic courses for use by students across all partner higher education institutions.

This approach significantly expands access to quality education and contributes to the development of innovative teaching methodologies within universities.

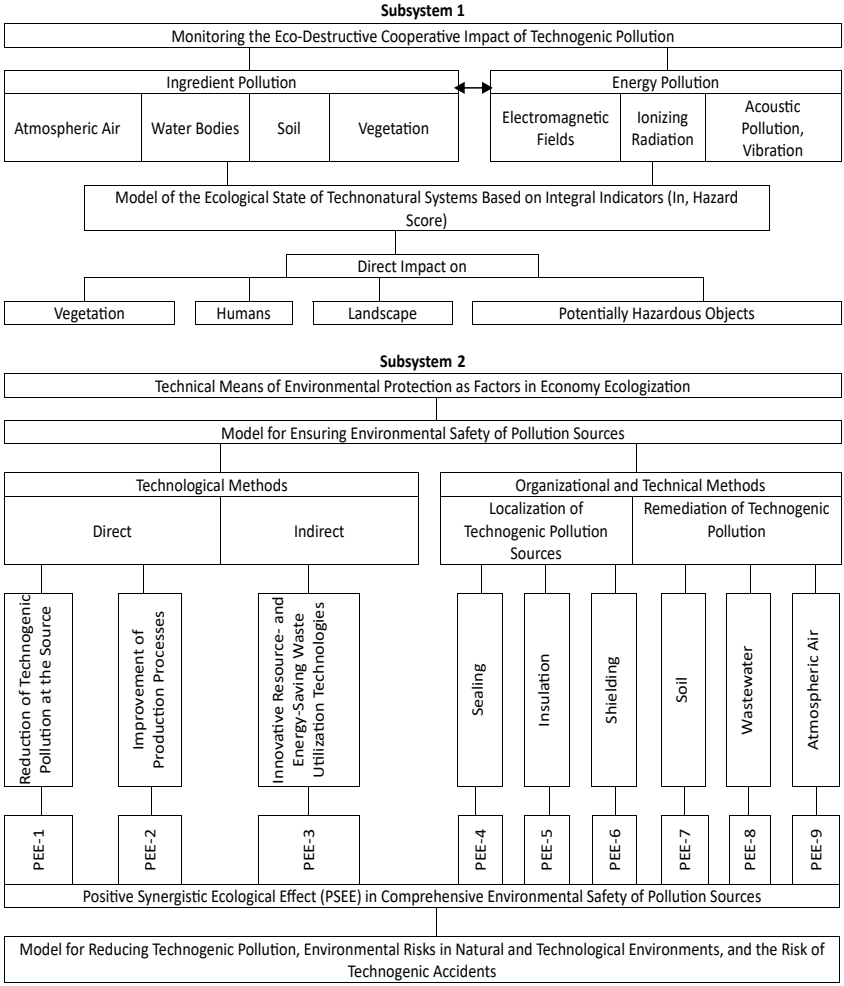

Fig. 4.7. Methodology for assessing the ecological state and environmental risks of technonatural systems as human habitats

Systematic environmental education will help establish the foundation of ecological thinking in society, which is the cornerstone of fundamental changes in the "human-nature" relationship.

Drivers of Social Cohesion and Community Resilience

Social cohesion in Ukraine is currently a cornerstone of the EU's social and educational policy. The relevance of this phenomenon for Ukrainian society has been emphasized by numerous EU donor programs and structures (UNDP, the Council of Europe, etc.) (Education – Free Encyclopedia Search Engine, 2023). As noted by Nesterova, Delini, and Zamozhskyi, Ukraine today strives to practically implement the doctrine of social cohesion across all spheres of societal life. "Social cohesion must become a guarantee of social stability and tolerant relations between the authorities and citizens in conditions of economic instability, large-scale organizational, structural, and financial-economic transformations that have become everyday occurrences due to globalization and the need to gain competitive advantages; to minimize the risks of mistrust among social partners in the context of global instability" (Kolomoiets, 2023).

It is known that social cohesion operates on two levels. The first is the relationship between citizens and the state. It is critically important for people to trust the authorities, feel that their voices are heard, and believe their interests are protected. When individuals are confident that their voice can influence change, they take responsibility for their country and act for its future benefit. The second level is the relationship we have with each other. We must support one another, show solidarity, and help those in need. Solidarity and mutual support are what help overcome any challenges and unite society into a cohesive whole.

How can we recognize the existence of social cohesion? There are several key indicators: a sense of responsibility for the country and actions aimed at its future well-being; respect for and acceptance of diversity, one of the most critical signs of cohesion; and pride when someone says, "I belong to this country". This sense of belonging and responsibility is the true manifestation of social cohesion.

Thus, social cohesion is what makes a community a genuine community. It is when everyone feels they can actively participate in the life of their country, enjoying equal opportunities and rights. It is the force that helps us build a future together, no matter the challenges.

We also see a growing sense of civic responsibility in Ukrainian society, where people realize their ability to influence changes in the country and

take responsibility for its fate. This reflects a deep understanding of shared civic duty. Together, by uniting efforts at all levels–from individual to state–the Ukrainian community can build a strong, cohesive, and resilient society that will not only overcome the challenges of war but also ensure development and prosperity for future generations.

Unfortunately, as Nesterova and Zamozhskyi note, even in societies considered to be civil and developed, the balance between "harmony" and "discord" increasingly tilts toward the latter. "This has led many researchers and political leaders to believe social cohesion is threatened. In any case, there is every reason to assert that among the main contradictions observed daily by society across different parts of the globe are those between the decline in social cohesion–under the influence of numerous factors highlighted above–and the need to ensure the resilience of economic and societal development, and consequently, the necessity for a new level and quality of social cohesion" (Kolot, 2009).

The social role of education in fostering social cohesion, especially in times of war, is of paramount importance today. HEIs have taken on an even more significant role–they have become centers of transformation that help Ukraine persevere and rebuild.

One of the critical tasks of universities during the war is fostering collaboration among different sectors of society. Universities are not just places for learning but also serve as social hubs for shaping the country's future.

It can confidently be stated that during times of crisis, Ukrainian universities have maintained their functionality and become pillars of society, promoting community cohesion, supporting scientific research, and creating new educational formats. Universities continue to build communities among students, faculty, researchers, local populations, governmental bodies, and international partners.

Modern Ukrainian universities are taking on the roles of visionaries and integrators, helping communities develop growth strategies. This is achieved through academic programs and participation in project offices that coordinate collaboration between businesses, governments, and communities.

Thus, universities have evolved into not just educational centers but also drivers of local community development. In wartime, they assist communities in adapting to the new challenges facing Ukrainian society, such as energy independence, environmental issues, local business development, and social sector challenges. For instance, Chernihiv Polytechnic National University has become an integral part of social and economic initiatives in the Chernihiv region.

One of the most pressing challenges for the Chernihiv region is preserving human capital, particularly within local communities. The war has caused significant migration abroad, threatening the region's future potential. Therefore, the university is tasked with retaining young people by creating conditions for their continued education. Active implementation of social action projects facilitates this goal.

The “Voices of Youth for Social Cohesion and Peace in the Community” project united the efforts of youth leaders and workers from Sumy, Chernihiv, Cherkasy, and Zaporizhzhia regions. It facilitated experience exchange, cooperation with regional youth policy providers, and strengthened the resilience and capacity of youth leaders by involving them in decision-making processes within communities. The project amplified youth voices in the social cohesion sphere by developing and presenting regional strategies titled “Youth. Peace. Security”.

As part of the project, training sessions were held on civic participation, social cohesion, inclusion, non-discrimination, and equality, further strengthening participatory youth policies and enhancing youth work during wartime in line with the “Youth. Peace. Security” agenda in Ukraine. Social cohesion among youth has been identified as a key priority in the National Action Plan for Ukraine’s Recovery. Enhanced cooperation and sustainable partnerships among youth organizations, councils, media, and youth policy providers are among the project’s notable achievements.

The “Voices of Youth for Social Cohesion and Peace in the Community” project was implemented from June 1 to October 31, 2024, by the NGO “Human Rights Foundation” with financial support from the European Youth Foundation of the Council of Europe. Chernihiv Polytechnic National University participated in the project in collaboration with the Gender Education Center NGO. Such collaboration between the university and the

community in project activities mobilizes and combines academic expertise and community experience to address social issues and promote the idea of a fair society.

Another critical challenge, not only for the Chernihiv region but for all of Ukraine, is supporting veterans and their reintegration into peaceful life. To raise awareness among veterans and their families, an information center for legal assistance was established in Chernihiv, Ivanivka, Snovsk, Mena, Korop, Mykhailo-Kotsiubynske, and Ripky territorial communities.

The "Legal Compass" project was implemented with technical administration by ISAR Ednannia and facilitated by the United Nations Development Programme (UNDP) in Ukraine, with financial support from the European Union under the "EU4Recovery – Empowering Communities in Ukraine" project.

135 individuals were the direct beneficiaries of this project, while 23 147 others benefited indirectly. As a result, community residents gained access to justice, and veterans and their families increased their legal awareness regarding their rights and protections.

Ukrainian universities today play a crucial role in strengthening the social fabric of the country. As aptly noted in the materials of the Alliance of Ukrainian Universities, they have become spaces where representatives of different societal sectors meet, discuss pressing issues, and seek solutions (Nesterova & Zamozhskyi, 2021). This positions universities as key hubs of civil society, helping to shape a new model of social interaction. An essential tool for fostering this interaction is active collaboration with international partners, organizations, and foundations.

One such example is the "Women as Agents of Social Cohesion and Community Recovery" project, implemented in the Chernihiv, Ripky, and Horodnia territorial communities by the NGO "Gender Education Center" (Chernihiv Polytechnic National University) with support from the United Nations Development Programme (UNDP) in Ukraine and financial backing from the Government of France under the "Funding Windows" initiative.

The project aims to enhance young women's capacity to participate in community recovery processes through training on conflict-free communication, facilitation, combating gender-based violence during and after the war, integrating gender perspectives into community planning documents

(including recovery plans), advocacy, and implementing gender initiatives. The project also includes gender analysis of target communities and monitoring opportunities for gender mainstreaming in recovery processes.

The project targets representatives of community organizations and informal initiative groups, local government employees collaborating with NGOs, and youth interested in community activities. Forty female participants have the opportunity to attend a series of educational training sessions to improve their competencies in gender equality, leadership development, advocacy, and building resilient communities.

These efforts aim to empower women to become active agents of change in their communities, fostering social cohesion and sustainable development. Additionally, the project promotes informational support and the dissemination of UNDP's "10 Steps to Advance Gender Equality in Crisis", including principles, goals, and methodologies for localizing UN Resolution 1325 and integrating the "Women, Peace, and Security" agenda into local development plans.

The project aligns with the objectives of the Eighth Ukrainian Women's Congress (Kyiv, 2024), where speakers emphasized the changing attitudes toward women's rights and roles in Ukrainian society and the economy. Joint planning for women's involvement in recovery processes is critical not only for the nation's overall reconstruction but also for the development of individual communities.

Today, universities understand their mission as combining local and global approaches to address social responsibilities. This includes tackling social challenges such as economic development, poverty alleviation, public health improvement, and the advancement of sustainable development goals.

This shift has also led to reevaluating the role of academic research. University research now often focuses on global challenges, such as combating diseases, disaster management, and the development of new energy sources. However, universities are also directly working with their communities to improve quality of life and address everyday issues.

For example, in the Chernihiv region, Chernihiv Polytechnic National University has become involved in addressing social and economic challenges, such as preserving human capital and supporting veterans. Projects like

"Voices of Youth for Social Cohesion and Peace in the Community" and "Legal Compass" demonstrate how universities mobilize knowledge and community experience to resolve pressing issues and promote the idea of a fair society.

As European literature highlights, Ukrainian universities traditionally emphasize training high-quality professionals and conducting academic research. However, leading universities worldwide provide students with opportunities to collaborate with social enterprises, address social problems, and improve lives (Education–Free Encyclopedia Search Engine, 2023; Hodges & Dubb, 2012).

Ukrainian universities are increasingly adopting this approach. Viewing the university as a "social enterprise" allows students to develop entrepreneurial skills applicable across business sectors, showcase them to potential employers, and provide staff opportunities to create solutions within their areas of interest. It also enables universities to collaborate with local businesses and communities to address regional challenges.

Universities serve as unique platforms for dialogue among government representatives, territorial communities, active citizens, and NGOs in areas of mutual interest. This role positions them as educational centers and drivers of societal transformation and sustainable development.

Conclusions

Chernihiv Polytechnic National University demonstrates how environmental principles can be integrated into university activities to achieve sustainability and reduce negative environmental impacts. The restoration of infrastructure after damage was accompanied by the implementation of energy-efficient solutions: insulation of walls and roofs, window replacement, and modernization of heating systems significantly reduced energy consumption and carbon emissions.

The use of renewable energy sources has become a crucial step in strengthening energy autonomy. The photovoltaic power station and energy storage system meet part of the university's energy needs and serve as an example of implementing innovative technologies. Training specialists in ecology and sustainable development also plays a key role. Students participate in projects related to waste recycling, sustainable urban planning, and the development of climate strategies.

Special attention is given to engaging with the local community: from educational activities to environmental initiatives, such as plastic recycling projects and the promotion of eco-friendly transportation. These efforts contribute to improving environmental literacy and public involvement. International cooperation through programs like Erasmus+ allows for adopting best practices and advancing the environmental agenda on a global scale.

Through these initiatives, the university demonstrates that sustainable development is achievable even under challenging circumstances. This serves not only as an example for other educational institutions but also as a contribution to addressing global environmental challenges.

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PART 3.
SOCIAL ASPECT OF ESG IN UNIVERSITIES

Chapter 5.
Gender, freedom and education in the era of war

Nataliia Kutsmus[1] and Inna Semenenko[2]

Introduction

The chapter is devoted to the gender aspects of the transformation of education and science in Ukraine under war conditions, evaluation of challenges to freedom in academic environment. The results of the study were obtained on the basis of a sociological survey of academic staff from Ukrainian HEIs (displaced, not displaced but physically damaged, not displaced and not damaged).

The study focuses on: respondents' perception of the conditions for personal and professional self-realization / self-development / self-improvement in the context of war; assessment of changes that have occurred in various spheres of life (professional activity, income, self-development, communication, etc.); identification of factors that have a negative and positive impact on freedom, in particular in the professional sphere; understanding of freedom, etc.

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Gender, Freedom, and Education in the Era of War

Gender, freedom, and education are issues that have been studied by many scholars worldwide. As a rule, the most pressing challenges were under the attention of researchers, such as gender aspects of presenting scientific achievements (Suissa et al., 2021), sustainability of education through the prism of academic freedom (Ekwueme et. al, 2016), the importance of peace education in the context of war (Gursel-Bilgin et al, 2023), and others. For Ukraine today, in the context of war, one of the most critical challenges is to ensure access to education and the exercise of rights and freedoms, with due regard for the gender factor. Education is one area of life that has been significantly affected by the war. In particular, in the field of higher education, since the beginning of the full-scale war in Ukraine in 2022, 29 higher education institutions and 64 separate structural units of institutions of different forms of ownership and subordination to different Ministries of Ukraine have been displaced (Ministry of Education and Science of Ukraine, 2022). Some of them have already been relocated twice: in 2014, after the occupation of parts of Luhansk and Donetsk regions and the Autonomous Republic of Crimea, 18 higher education institutions moved to the territories controlled by the Ukrainian government (Cabinet of Ministers of Ukraine, 2015). In addition, educators themselves are often victims of conflict (Education, 2005), experiencing displacement in different ways, having to work remotely in new conditions that are often not inclusive and do not meet the 'good working conditions' stipulated in their contracts. At the same time, education plays a significant role in the processes of restoring the country as a whole during wartime and post-war periods, which has been confirmed over the years (Institute of Higher Education of NAES of Ukraine, 2020; Ministry of Education and Science of Ukraine, 2022; Barakat et al. 2013, Milton & Barakat, 2016, Orzhel et al. 2023, Semenenko & Bilous, 2023). Therefore, ensuring the rights and freedoms of educators, as well as providing them with opportunities for development and improvement under martial law, is important, as it will affect not only personal self-development and professional activity, but also the quality of education and the involvement of HEIs in the recovery processes during war and post-war time. In order to develop appropriate recommendations, it is necessary to have an adequate

analysis of the needs and realities of professional activity of academic staff. This study is aimed at analysis and assessment of the war's impact on the freedom of professional activity of the academic environment representatives and analysis of gender-based differences of such impact.

Methodology

In order to obtain information on the impact of the war on the freedom of academic personnel in terms of men and women, the researchers developed a questionnaire and conducted a survey of representatives of the Ukrainian academic community. The survey was conducted via ArcGIS system. The link to the survey was spread among the representatives of HEIs in Ukraine. The scope of targeted HEIs included displaced HEIs, not displaced but physically damaged, not displaced and not damaged. The number of the respondents amounted to 140 people.

The structure of the respondents is the following:

- *by gender*: female – 68 %, male – 32 %.
- *by academic degree*: without degree – 13 %, PhD – 60 %, Dr. Sci. – 27 %.
- *by age*: under 25 years – 17 %; 26–35 years – 9 %; 36–50 years – 43 %; 51–60 years – 16 %; over 60 years – 15 %.

The obtained answers were analysed using statistical and analytical methods.

Impact of War on Freedom: Assessments and Key Gender-Specific Factors

One of the key questions asked to the representatives of the academic community was their own assessment of the impact of the war on various types of freedoms. Moreover, the concept of freedom was not given intentionally to not limit their understanding of this category. In particular, respondents were asked to rate the impact of war on freedoms on a scale from -3 to +3, which we aggregated into positive, neutral, and negative assessments. A summary of positive and negative assessments by men and women is presented in Table 5.1. Thus, most women and men noted the negative impact of the war on personal freedom in general, freedom of choice, freedom of movement, and academic freedom. In particular, the

largest number of negative assessments of the war's impact on general freedom (83 %) and freedom of movement (87 %) were made by men. These types of freedoms were the most vulnerable for men, which can be explained by the limited permission to travel abroad, as well as the need to register and update data at the territorial recruitment and social support centres within a limited time after any changes in location or professional employment. For women, the top negative impacts are personal freedom in general (73 % of female respondents) and freedom of choice (68 % of female respondents). At the same time, it should be noted that 11 % of men and 22 % of women believe that the war had a positive impact on personal freedom in general; and 9 % of men and 26 % of women noted a positive impact of the war on freedom of movement (Table 5.1).

Table 5.1. Impact of war on freedom (assessments by men and women)

Types of freedom	Men			Women		
	Negative	Neutral	Positive	Negative	Neutral	Positive
Personal freedom in general	83 %	6 %	11 %	73 %	5 %	22 %
Freedom of choice	66 %	21 %	13 %	68 %	13 %	19 %
Freedom of movement	87 %	4 %	9 %	65 %	10 %	26 %
Academic freedom	38 %	34 %	28 %	35 %	32 %	32 %
Freedom of speech	45 %	43 %	13 %	31 %	39 %	30 %
Freedom of thought	32 %	43 %	26 %	19 %	47 %	33 %
Freedom of worldview	32 %	40 %	28 %	22 %	44 %	34 %

Source: research results of the authors

Men also noted a negative impact of the war on freedom of choice (66 %), freedom of speech (45 %) and academic freedom (38 %). For women, freedom of movement is third in the anti-rating of the war's impact (65 %).

Regarding the assessment of the war's impact on freedom of speech, one could notice that the distribution of women's votes is almost equal, with a slight margin of votes (3 %) in favour of a negative impact. According to more than 40 % of male and female respondents, the war has no impact on freedom of thought and worldview. The only difference between men and women can be seen in determining the impact of the war on freedom of speech: 45 % (the largest percentage of male respondents) believe that the impact is negative, while the largest percentage of female respondents (39 %) say that it is neutral.

If we look at the types of freedoms that received the most positive relative value of votes among all the options, for men it is academic freedom and freedom of worldview (28 % each), and for women – freedom of worldview (34 %). The lowest number of positive ratings among men was given to freedom of movement (9 %), and among women – to freedom of choice (19 %).

Thus, in general, the conclusion can be made that men have a more negative perception of the impact of the war on various types of freedoms and the ability to freely and unhinderedly carry out their professional activities and lead a private life.

To explain their scores, male and female respondents were asked to identify the key factors that have the greatest positive and negative impact on freedom of professional activity. In particular, they were asked to identify the three most significant factors. Among the most positive factors that were offered to both men and women to choose in terms of their impact on freedom of professional activity were the following:

- institutional (choice of acceptable format of work, expansion of forms of control of students' knowledge, etc.);
- preferential (national and international programs to support academic staff, simplified procedures for regulating the educational process, etc.);
- psychological (social mutual support and responsibility, overcoming internal tension by redirecting energy to creative and professional activities, post-traumatic growth);
- motivational (awareness of responsibility to the society and importance as a change agent, value of one's own image in the professional environment);

- intra-organizational (social interaction, internal rules and policies of the functioning of the higher education institution under martial law);
- external (public demand for education, trust in the role of teachers, etc.);
- other.

Table 5.2 provides the rating of the most positive factors, according to men and women. For men, the most significant positive factor is motivation (as an opportunity to realize their responsibility to society and their importance in acting as an agent of change, the value of their own image in the professional environment) – 70 % of male respondents chose this option. For women, this factor is also essential – it ranks second. For women, the most important positive factor is the institutional one (which is manifested in the choice of an acceptable format of work, expansion of forms of control over students' knowledge, etc.) – this factor was chosen by 59 % of women. For men, this factor is in the second place.

Table 5.2. Rating of factors, that have the greatest positive impact on the freedom of professional activity of men and women

Rating of positive factors by men		Rating of positive factors by women	
Factor	**% of respondents**	**Factor**	**% of respondents**
motivational	70 %	institutional	59 %
institutional	51 %	motivational	56 %
intra-organizational	40 %	psychological	44 %
preferential	36 %	intra-organizational	38 %
external	28 %	preferential	35 %
psychological	19 %	external	28 %
other	4 %	other	1 %

Source: research results of the authors

The ranking of the most negative factors that, in the opinion of men and women, have the greatest negative impact on the freedom of professional activity is presented in Table 5.3. Similarly to the positive factors,

respondents could choose the three most significant factors from the proposed ones:

- institutional (requirements and restrictions due to martial law);
- preferential (support programs for academic staff of certain target groups (by place of residence, activity profile, specialty, etc.));
- personal (insufficient level of foreign language proficiency, inability to overcome cross-cultural and adaptation barriers, unpreparedness for mobility);
- security (forced changes in work schedules, lack of access to safe places, unpredictability of dangerous situations);
- psychological (emotional stress, anxiety, inability to fully rest and recover, stress and sleep disturbances);
- internal organizational (competition, outflow of students, departure of colleagues abroad, internal rules and policies of functioning under martial law, etc.);
- external (anxious moods in society, rethinking the priority of education, transformation of research and cooperation areas due to the focus on war, etc.);
- other.

Table 5.3. Rating of factors, that have the greatest negative impact on the freedom of professional activity of men and women

Rating of negative factors by men		Rating of negative factors by women	
Factor	**% of respondents**	**Factor**	**% of respondents**
psychological	64 %	psychological	62 %
security	55 %	external	53 %
institutional	49 %	security	49 %
external	38 %	personal	38 %
personal	32 %	internal organizational	31 %
internal organizational	30 %	institutional	27 %
preferential	6 %	preferential	4 %
other	0 %	other	2 %

Source: research results of the authors

For both women and men, the psychological factor has the greatest negative impact on freedom of professional activity: 64 % of men and 62 % of women said that emotional stress, anxiety, inability to fully rest and recover, stress, and sleep disturbances significantly affect their ability to realize themselves. That is, it is the internal factor and the internal perception of the situation caused by the war that plays the greatest role. The least negative impact on both men (6 %) and women (4 %) is caused by the preferential factor, which is the provision of individual support programmes for academic staff of certain target groups (selected by place of residence, activity profile, specialty, etc.).

Men's professional self-realization is also negatively affected by security and institutional factors, which are more a manifestation of the objective external environment. Women's professional self-realization is negatively affected by other external factors and security situations.

An interesting observation is that the psychological factor, which ranks third among women, is the least important for men: 44 % of women versus 19 % of men chose it as important. For women, the least important group of proposed factors was the group of external factors, such as public demand for education, trust in the role of teachers, etc.: only 28 % of female respondents chose this option. A positive fact about the possibilities of self-realisation during the war is the answers of both men and women about the availability of conditions for personal and professional development, self-realisation and self-improvement. 81 % of men and 89 % of women reported having such conditions, despite the negative impact of various factors (Fig. 5.1).

When asked about the factors that limit personal and professional development, self-realization, and self-improvement, respondents gave different answers, but all of them can be summarised as follows. Men consider war and danger, restrictions on movement, unsatisfactory conditions of professional and personal activity, and poor psychological and emotional state as the main obstacles that limit their personal and professional self-realization, self-development, and self-improvement. Women identified poor psychological and emotional state, low salaries and financial instability, lack of time and excessive workload, and unsatisfactory conditions for professional and personal activities as the main obstacles

to personal and professional self-realization, self-development, and self-improvement. That is, for men, the main factors are restrictions and insecurity, while for women, emotions, psychological state and financial independence were more critical.

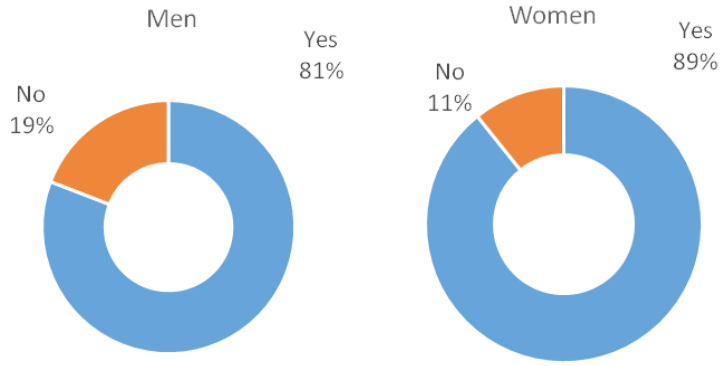

Fig. 5.1. Availability of conditions for personal and professional self-realization / self-development / self-improvement of men and women

Source: research results of the authors

Support by the International Academic Community: Perception by Ukrainians

Despite the restrictions on traveling abroad and the perceived negative impact of the war on freedom of movement, men feel more supported by the international academic community in their professional activities (Fig. 5.2). Almost half of the male respondents (47 %) answered this question *positively*. In contrast, only 37 % of female respondents reported experiencing such support, and half of them could not provide a specific answer. The percentage of both men and women who do not feel this support is approximately the same.

In terms of the specifics of such support, men and women mentioned the following forms of international cooperation that have become more accessible to them (Table 5.4).

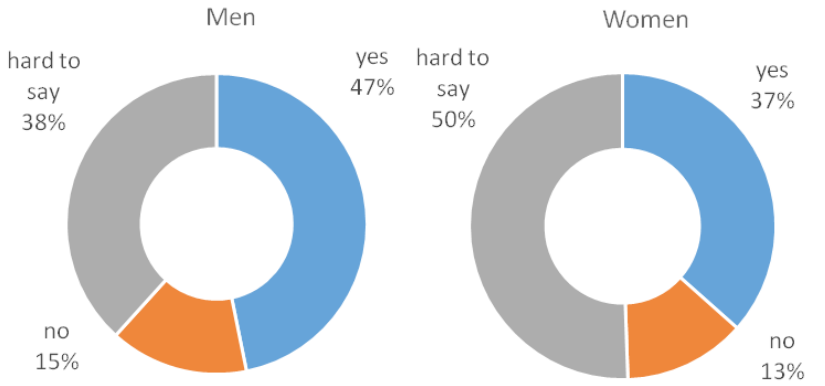

Fig. 5.2. Feeling of increasing support for professional activities of men and women from the international academic community

Source: research results of the authors

Table 5.4. Expanded forms of international cooperation accessible to men and women since the war onset

Forms of most accessible international cooperation for men		Forms of most accessible international cooperation for women	
Form	**% of respondents**	**Form**	**% of respondents**
international internships/ training programs	53 %	international internships/ training programs	69 %
access to international databases / information resources / publications from closed access publications	43 %	access to international databases / information resources / publications from closed access publications	43 %
international project activities	38 %	international project activities	31 %
participation in academic exchange programs	23 %	guest visits to foreign universities	24 %
participation in international research teams	23 %	participation in academic exchange programs	23 %

Forms of most accessible international cooperation for men		Forms of most accessible international cooperation for women	
Form	**% of respondents**	**Form**	**% of respondents**
guest visits to foreign universities	17 %	participation in international research teams	17 %
access to international research infrastructure	13 %	access to international research infrastructure	15 %
other	2 %	other	1 %

Source: research results of the authors

Despite the different conditions and perceptions of restrictions on movement and freedom in general, international internships and training programs have become the most accessible form of international cooperation for both men and women. Access to international databases / information resources / publications from closed access publications and international project activities are the second and third most commonly supported forms of international cooperation for women and men. That is, both men and women equally see this support and the availability of various forms of cooperation. The remaining answers ranged from 13 to 24 % of respondents (men and women), but this does not make a significant difference between their answers.

Work-Life Balance, Changes, and the War: What About Correlation

In recent years, the academic environment in Ukraine has acquired new characteristics, and with each passing day of the war, it is becoming more adaptive to the conditions of the new reality. At the same time, it is characterized by a high level of tension and imbalance, overload and the requirement of multitasking for most employees of HEIs. In this context, managing the boundaries and balance between different spheres of life and work is becoming increasingly complex, requiring innovative solutions to maintain productivity and psychological well-being, as well as personal life. Security concerns have made balancing career and personal life even more difficult and, in some cases, impossible.

According to Zhylinska and Prylutska (2023), work-life balance has gender specifics due to different social expectations and stereotypes that affect

men and women differently. However, such conclusions were mainly formed on the basis of the usual lifestyle inherent in peacetime. It is expected that in the context of military aggression, the ratio of time and effort spent on professional and non-professional activities will be even more distorted for representatives of different genders. The analysis of respondents' answers shows that there have been significant changes in this aspect since the beginning of the Russian Federation's full-scale invasion. 54 % of respondents say that work-life balance has changed in favour of professional activities, 28 % – in favour of family life, and only 18 % said there were no significant changes. A gender analysis of respondents' answers (Fig. 5.3) shows that during the war, men were forced to focus more on their work responsibilities (over 70 % of respondents), while every second woman had to shift her focus to work. Women respondents were also twice as likely as men to note an increase in time spent on personal life, such as caring for children and family, performing socially important functions etc.

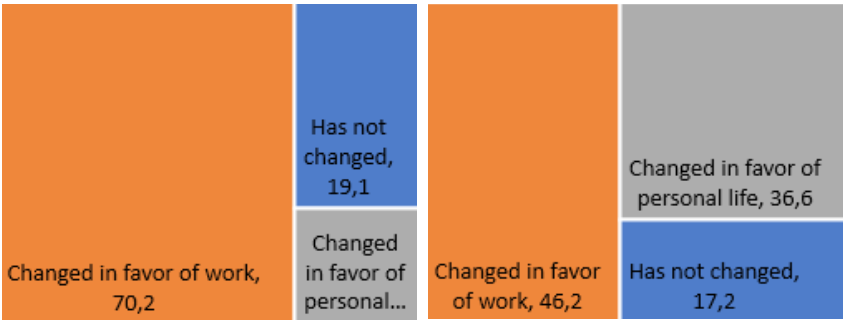

Fig. 5.3. Changes in work-life balance in war period: view by genders, (*a*) male, %; *b*) female, %)

Source: research results of the authors

Notably, representatives of Ukrainian universities who were forcibly displaced from the territories occupied by the Russian Federation demonstrated a slightly different picture of their life (dis)balance in their responses. Thus, among women in this category, more than 40 % indicated

that it had shifted in favor of family, 46.4 % – in favor of work, and only 12.5 % managed to keep it unchanged. The distribution of men's responses (15.4 %, 65.4 %, and 19.2 %, respectively) shows that for them, too, a change of location and a new environment requires increased attention to family, but career and professional activities remain a higher priority. Thus, the gendered distribution of social roles under the influence of military aggression increases the imbalance of responsibility for the family and opportunities for professional self-realization between men and women in favor of the former and restricts the freedom of choice of women to a greater extent.

The mentality of Ukrainians is characterized (and confirmed by the survey results) by a higher level of responsibility of men for the material well-being of the family. As a result, 51 % of the surveyed men combine university work with entrepreneurial activity (8.5 %), occasional provision of paid services (23.4 %), and employment in other organizations (19.1 %). A similar strategy of combining sources of employment is practiced by about 36.6 % of women respondents. At the same time, the main additional source of women's income is ad hoc service provision (18.3 %), and entrepreneurial activity – only 2 %. Thus, male representatives of the academic environment in Ukraine are more likely to combine professional activities than women. The gender gap in the proportion of people who supplement their main activity in higher education institutions with other types of employment is 14 % in favour of men, in particular, in the field of entrepreneurship – four times (6.5 %).

One of the explanations for this gap is the level of productivity, which depends on a wide range of factors – motivation, skills, desire for self-realization, freedom, ability to manage emotions, existential experience, and investment in professional growth (Petrigliery and Ashford, 2023). Respondents' subjective assessments of their individual level of productivity have significant gender differences. Thus, among men, the share of those who highly evaluate their own productivity in the current environment is significantly higher than among women – 36.2 % vs. 22.1 %. The identified gender differences in the perception of one's own ability to work are closely correlated with the dominant desire among men to expand their sources of income and take care of financial independence. As a result, they are more easily entered into the system of additional labour relations both in the academic environment and outside it.

The study of the war impact on various aspects of the lives of academics, which are associated with their freedom to some extent, allows us to conclude that women have had a harder time accepting the Russian Federation's full-scale invasion at the psycho-emotional and domestic level, while men have a more negative perception of changes in income, professional self-development and self-realization, and the system of communication with family and friends, colleagues (Table 5.5). At the same time, a group of respondents positively assess wartime changes for themselves. 36.6 % of women noted improved opportunities for professional self-realization, 41.9 % – for personal development, and 14.0 % – for communication with friends. The share of male respondents who positively assessed the changes in communication with family, colleagues and management, as well as in the possibilities of combining different areas of employment during a full-scale war, is higher than among female respondents.

Table 5.5. Change of life since the outbreak of full-scale war, (%)

Areas of life	Assessment							
	negative		without significant changes		positive		difficult to answer	
	F*	M**	F	M	F	M	F	M
Level of income	47.3	53.2	34.4	27.7	11.8	12.8	6.5	6.4
Well-being (living conditions, everyday life)	59.1	57.4	28.0	27.7	3.2	8.5	9.7	6.4
Professional self-realization and improvement	17.2	29.8	37.6	42.6	36.6	21.3	8.6	6.4
Personal self-development and self-improvement	15.1	25.5	34.4	48.9	41.9	23.4	8.6	2.1
Psycho-emotional state	84.9	80.9	4.3	17.0	1.1	0.0	9.7	2.1
Communication and relationships with family	21.5	29.8	46.2	46.8	20.4	21.3	11.8	2.1
Communication and relationships with friends	26.9	57.4	49.5	25.5	14.0	8.5	9.7	8.5
Communication and relationships with colleagues	14.0	19.1	65.6	66.0	12.9	14.9	7.5	0.0

Areas of life	Assessment							
	negative		without significant changes		positive		difficult to answer	
	F*	M**	F	M	F	M	F	M
Communication and relationships with management	6.5	6.4	65.6	66.0	21.5	25.5	6.5	2.1
Ability to combine work at the university with other work	23.7	27.7	38.7	44.7	14.0	17.0	23.7	10.6

**F – female, **M – male.*

Source: research results of the authors

The survey results also confirm the subjectivity of the perception of freedom gained by representatives of academic environment. Thus, a more negative impact of the war on academic freedom was noted by men – the share of those who negatively assessed this factor was 38.2 % of respondents against 35.5 % of women (Fig. 5.4). While the difference between the proportion of male and female respondents in

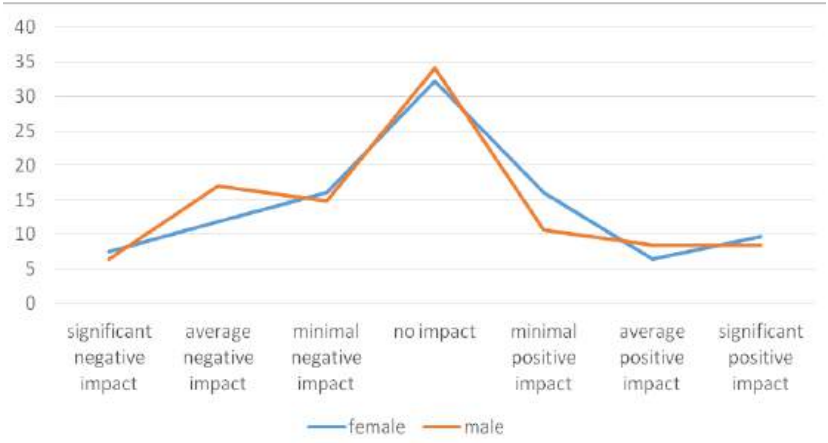

Fig. 5.4. War influence on academic freedom

Source: research results of the authors

the negative context of the war's impact on academic freedom is not very noticeable, in terms of its positive impact, there is a more pronounced difference – almost 5 %.

This situation can be partly explained by the specifics of the academic environment, which provided adequate conditions for professional activity and development regardless of gender, except for restrictions on men's travel abroad, and thus their opportunities for offline participation in various internationalization projects. Forced mobility restrictions for men are offset by a higher level of their involvement in university management processes: 62 % of male respondents noted their participation in management decision-making (compared to 58 % of female respondents), 68 % participated in the development of strategies, policies, and procedures of the HEI (only one in two women respondents). With regard to the management of HEIs, the survey results specify the respondents' vision of the measures necessary to improve the results of their professional activities at the internal corporate level. These include:

- ensuring student enrolment;
- accelerated adaptation and modernization of universities;
- de-bureaucratization of the educational process;
- transparent development and financial management strategy;
- balancing research and teaching activities;
- combining top-down and bottom-up approaches to management, strengthening communications within the organization;
- physical location and material base;
- equal career conditions and elimination of nepotism;
- human-centeredness and team building.

Gender Differences in Perception of Freedom – Do They Exist?

The final aspect of the survey was the study of the perception and awareness of freedom by each of the respondents. The answers received showed that this concept has a very diverse perception – from the basic characteristics associated with everyday life (the possibility of free choice, expression of will, statements, thoughts and communications, etc.) to the realization of the highest needs of the individual (the possibility of self-realization and development; the irreplaceable value of life; feeling happy

from the activities you conduct; the goal, not the way; absolute ability to act, life's guideline).

Many respondents associate freedom with the peculiarities of professional activity, namely, free choice of the direction of professional activity, the opportunity to realize oneself as a researcher and teacher, no restrictions on research, support for the quality of professional life, creative performance of tasks, financial independence, a conscious need for professional and creative activity, and absence of discrimination. Notably, 66.4 % of respondents (53.2 % of men and 74.2 % of women) answered negatively to the question about discrimination in higher education, and 5.7 % were unable to give a definite answer. Positive responses include complaints about such forms of discrimination as ageism (both against teachers and students who start their studies at an older age), hierarchical and status discrimination, devaluation of the role of colleagues abroad, and gender discrimination (5.0 % of respondents reported its existence).

The respondents also pointed to cases of discrimination related to the external environment of higher education institutions – violation of autonomy, unreasonable associations and voluntarism in decision-making on the fate of universities, unequal conditions for displaced and non-displaced HEIs, uncompetitive salaries that threaten the financial freedom of academic staff.

The answers of many survey participants clearly demonstrated the impact of the war on the understanding and value of freedom. Among the most emotionally sensitive responses were the statements that freedom is "the absence of war", "freedom of action without threatening one's life and the lives of loved ones", "life without fear", "freedom is when you wake up in the morning and do not hear sirens, you don't have to wait for the "russian roulette" to choose where it will send its missiles and decide who will live and who will die today", "ending the war in Ukraine", "the possibility of self-realization and self-development in an independent and free Ukraine", "life", "return of the occupied territories".

"*Freedom is a dream that will be realized after the war is over*!" said a male respondent, aged 36–50, holding a PhD and working at a university. He had not been physically harmed by the war and had not experienced displacement.

The interpretation of the concept of freedom by representatives of the academic environment – respondents to the survey, despite its general civilizational significance, turned out to be gender differentiated (Box 23). This result is generally expected given the results of research (Suissa and Sallivan, 2021; Vähäsantanen et al., 2020) and the findings of international organizations (UN, 2021), which emphasize the existence of gender inequality in matters of freedom and its perception.

Box 23. Gender differences in perception of freedom

Women Men

For example, female respondents most often associated the term “freedom” with the ability to choose and develop, determine one's own career trajectory and make decisions, and the absence of restrictions on thinking, speaking and communicating. In addition, their answers emphasize the importance of such internal aspects of freedom as style and life, dreams and desires, enjoyment of life, etc. In contrast to women's vision of freedom, men's vision of freedom is formed mainly around such aspects of life as goals and decisions, professional activity, rights and responsibilities, independence (including financial) and lack of restrictions.

Conclusions

Therefore, freedom is the most important mental value for every person, and at the same time, it is an immanent feature of a democratic socially oriented society, which is of exceptional importance for Ukrainians in general (and especially for representatives of the academic environment). It is also a sign of Ukrainians' identity, which is manifested through their extraordinary love for freedom and its importance for each individual, as well as their basic existential value. Education is an ideal weapon that can overcome any stigma and prejudice and eradicate discrimination, allowing people to live freely and be themselves. The higher education system should be free from any manifestations of discrimination and should provide education in an atmosphere of equality, respect for diversity, and adherence to human rights standards.

The war has exacerbated the problem of freedom for representatives of the academic environment not so much in the organizational sense, but rather has affected its personal limits and manifestations, and strengthened its value. In addition, it made this problem, even more, gender-differentiated, marking it as a restriction of mobility and a decrease in financial freedom for men and a shift in the balance in favor of the family, living conditions, and psycho-emotional exhaustion for women. At the same time, regardless of gender, respondents noted the importance of conditions for professional self-realization and development, the right to choose and make decisions, independence, and freedom of thought.

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Chapter 6.
Inclusion, cooperation projects and professional education resilience during the wartime: Ukrainian dimension

Marian Tripak[1], Maryna Voloshchuk[2], and Oksana Palyliulko[3]

Introduction

This chapter describes the challenges of the inclusive education development in HEIs, the strategy of Educational and rehabilitation institution of higher education "Kamianets-Podilskyi State Institute" (ERIHE KPSI) to compound both the educational process and rehabilitation (physical (namely sport rehabilitation), socio-pedagogical and psychological rehabilitation). This chapter examines the changes in the teaching and learning of students with disabilities during the wartime in Ukraine, different efficient tools for the socialization of young people with disabilities.

For the efficient socialization of young people with disabilities, it is necessary to create an accessible barrier-free space, which means mobility and access to premises belonging to the social infrastructure of higher education institutions, provision of important technical means: means of movement (wheelchair, crutches, walkers, handrails, etc.), special means for barrier-free orientation, special means for training and development of hard, as well as soft skills (free access to the Internet and computer equipment, multimedia equipment, resources of the distance education site etc.), special sports and physical culture and sports equipment.

The chapter examines the experience of ERIHE KPSI in the context of professional training of young people with special needs and the creation

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of an accessible barrier-free educational and training environment combined with rehabilitation services, scientific and social-psychological space. It is also the most effective mechanism for increasing their social status and security, socialization, and professionalization, which will significantly reduce tensions in the modern labor market and in the conditions of the development of the information society.

Inclusion in Ukrainian HEIs and Socialization of HEIs: the Case of Inclusive Education in ERIHE KPSI

Numerous works have developed the study of inclusive education. It focuses on national and international cases, individual experiences of institutions, interaction between teachers and students in the framework of inclusive education, their skills, and innovative methods of learning and teaching.

Ukraine made plenty of steps forward toward the development of inclusion, namely, inclusive education. The special role of HEIs is to create an educational barrier-free environment and special educational services for people with special educational needs. The notion of inclusive education is used in the system of Ukrainian research and means the provision of educational services for all students in a wide meaning, and the provision of educational and socio-pedagogical ones for students with disabilities, students with special educational needs (orphans, children and persons deprived of parental care, and after full-scale war – internally displaced children and persons, young people affected by the war, etc.).

The research of inclusive education, i.e., methods and teaching for young people with disabilities, is an issue that nowadays has a special place and is developing even during martial law and wartime in Ukraine.

In the discourse on research into inclusive education, it is important to highlight the key issues and conditions necessary for its development. When comparing the progress of inclusive education at the democratic European level, scientists emphasize the significance of studying this aspect.

Inclusive education is analyzed in urban and rural settings, focusing on national contexts and legal frameworks. The Canadian government is intensively studying the problems and main issues of inclusive education

due to concern about the future of the state, as well as the understanding that the economic and social well-being of Canada currently depends on investments in children, on providing opportunities for the full development of each child potential (Bondar, 2016). Llorent et al. (2024) focus on the relation between the inclusive education by teachers and competences (social and emotional) of their students, who study in the compulsory secondary education in the context of the space – school, classroom, individual. Special issues in the building the inclusive education is studied (Reicher, 2010) in the connection with social and emotional learning, namely, conceptual and empirical issues.

The concepts of "inclusion" and "inclusive education" are examined from various perspectives and encompass a range of dimensions, including national, ethical, legal, and governmental aspects. For instance, researchers highlight ambiguity issues, noting that inclusive education "can be defined in various ways" (Ainscow & Sandill, 2010).

In Ukraine, the development of inclusive education within the context of barrier-free educational growth raises numerous questions and highlights various directions for further study and research. Bondar (2016) defines inclusive education as the creation of conditions that prioritize the treatment of individuals as a fundamental value. This includes establishing commissions to address issues in the development of inclusive education, fostering the efforts of advocates for a humane society, publishing reports, and developing the principles of effective legislation. For the successful implementation of inclusive education in Ukraine, "it is necessary to overcome social and psychological barriers to inclusion", which becomes feasible and achievable "through the reformation of social values" (Bondar, 2016, p. 53). Numerous scientifically grounded theoretical and practical resources have been created in the context of developing inclusive education. These resources primarily focus on fostering an inclusive educational environment and accessible architectural design in preschools and schools. Additionally, the concept of the New Ukrainian School–a key reform initiated by the Ministry of Education and Science–has been successfully developed. This reform aims to create schools that are enjoyable for students to attend and that equip them not only with knowledge but also with the skills to apply it in everyday life.

Over the past decade, a range of educational and methodological materials has been developed and disseminated to foster favorable conditions for interaction among participants in the educational process within HEIs. These resources include Basics of Inclusive Education: Educational and Methodological Manual (Kolupayeva et al., 2007), Inclusive Education in Ukraine: Paths from Theory to Practice (Inkliuzyvna osvita v Ukraini: shliakhy vid teorii do praktyky, 2017), Inclusive Education in Institutions of General Secondary Education: A Guide for Trainers (Inkliuzyvne navchannia u zakladakh zahalnoi serednoi osvity: kerivnytstvo dlia trenera, 2018), and Inclusive Education from A to Z: A Guide for Teachers and Parents, among others (Inkliuzyvna osvita vid A do Ya: poradnyk dlia pedahohiv i batkiv, 2016).

HEIs develop new platforms for the research and presentation of their educational and research activities. ERIHE KPSI has founded scientific journals and monographs in the field of inclusion (Inkliuzyvna economika, 2024; Vyshkil vyshchoi ta fakhovoi peredvyshchoi inkliuzyvnoi osvity, 2024; Inkliuziia i suspilstvo, 2024; Sotsialna robota ta psykholohiia: osvita i nauka, 2024).

The issue of inclusive education in professional pre-tertiary and higher education institutions is particularly relevant today, as inclusion serves as an educational approach designed to teach and support individuals with special educational needs by creating conditions that maximize the efficiency of the learning process.

Professional and vocational training for young people with special needs is one of the most effective mechanisms for enhancing their social status and security. For society, it contributes to reducing tension in the labor market. According to the State Employment Service, 4 013 individuals completed professional training in 2018. This figure has remained relatively consistent over the years, with 4 016 individuals trained in 2017 and 3 941 in 2016 (SES, 2018).

The total number of persons with disabilities eligible for employment remains high. Compared to 2017, employment recommendations were issued to 303 546 persons with disabilities. Among them, 145 279 individuals were registered with the Medical and Social Expert Commission (MSEC) and required professional rehabilitation. However, only a quarter of these individuals underwent professional rehabilitation and gained employment. This situation reflects the limitations of financial support provided by the

state. Significant barriers persist in the professional training and social integration of young specialists within society (SES, 2018).

The socio-economic and financial-psychological socialization mechanisms in inclusive professional pre-tertiary and higher education institutions of national importance involve an active and selective process. This process aligns with individual needs and values in the context of the economy and the internationalization of socio-economic values. It emphasizes the active engagement of students as individuals within the system of educational, scientific, and socio-economic relations.

Socialization is one of the central and priority issues in social psychology. This issue has become increasingly critical in the current context of significant societal challenges, including the COVID-19 pandemic and the ongoing war in Ukraine. The transition to widespread distance learning in higher education has reshaped socialization processes, emphasizing the need to adapt to new realities while maintaining meaningful educational and social connections. These transformations highlight the importance of understanding and supporting socialization as a dynamic process within the educational system and society.

Inclusive socialization is a multifaceted process involving the adaptation of individuals with special educational needs to life within society. It encompasses the assimilation of social connections, communication, and mutual relationships. Through this process, individuals develop a system of values and orientations, acquire socio-economic skills, and learn behavioral forms and methods that facilitate effective interaction within the broader social context.

In socialization, students explore social realities and develop practical skills for interacting with others in various social roles and contexts. ERIHE KPSI has defined its mission as integrating educational services with rehabilitation efforts. These include physical, socio-psychological, and socio-pedagogical support, aimed at fostering comprehensive student development. During the full-scale war, the institution has also prioritized social and volunteer activities, further enhancing its role in supporting students and the broader community.

ERIHE KPSI's activities focus on developing professional education, sports, and rehabilitation. Key areas include enhancing digital skills,

providing physical and socio-psychological rehabilitation, establishing professional training and research laboratories, and offering socio-psychological and pedagogical support. These efforts aim to facilitate students' adaptation to the educational process, foster interaction, and improve communication skills.

A student with a disability is a young individual who often requires extensive rehabilitation services, including during their pursuit of higher education. An inclusive HEI offers comprehensive rehabilitation support for students with disabilities throughout their studies. While professional (educational) rehabilitation is a priority, it represents only one component of the broader rehabilitation process. This holistic approach is the defining characteristic and distinguishing feature of such specialized HEIs.

Education and Rehabilitation in the Structure of Inclusive HEIs: ERIHE KPSI Approach

One of ERIHE KPSI's primary priorities is to create favorable conditions that support the social, pedagogical, physical, and socio-psychological rehabilitation of students with disabilities and special educational needs.

Aligned with its strategy, ERIHE KPSI offers comprehensive rehabilitation services for students with disabilities throughout their studies. The Center for Health Rehabilitation and Physical Culture was also established to support physical rehabilitation. It is staffed by skilled physical therapists who provide accessible and high-quality care in a supportive environment.

ERIHE KPSI offers innovative educational programs at both the Bachelor's and Master's degree levels, supported by a well-developed barrier-free environment and infrastructure. This includes educational, scientific, research, rehabilitation, and learning facilities. The institution continually assesses and addresses the needs of young people with disabilities and special educational needs, including orphans, individuals deprived of parental care, internally displaced persons, and those affected by the war.

ERIHE KPSI is the only higher education institution in Ukraine that integrates advanced health-preserving and valeological technologies into its educational approach. These methods ensure effective learning and high-quality professional training for students with disabilities, orphans, and those deprived of parental care. The institute also fulfills a vital social

function by fostering youth initiatives, supporting the activities of the Student Council, and organizing events that promote the development of all students, particularly those with special educational needs.

The rehabilitation of students with disabilities at ERIHE KPSI is conducted under the Law of Ukraine "On Rehabilitation". During their studies, students receive a comprehensive system of medical, psychological, pedagogical, physical, professional, and social support. This includes measures in physical culture, sports, and daily living assistance aimed at restoring or compensating for impaired or lost body functions. The ultimate goal is to help students achieve and maintain social and economic independence, adapt to the workforce, and integrate into society.

A key objective of the educational policy at ERIHE KPSI is to organize an effective educational process while promoting health preservation and fostering a healthy lifestyle among the younger generation. Since 2021, rehabilitation services–encompassing physical and socio-psychological rehabilitation–have been provided to students with disabilities and special educational needs. Starting in 2024, these services have been extended to internally displaced persons and individuals affected by the war, utilizing the following methods:

- Physical rehabilitation was implemented through tailored physical education classes organized by disease nosologies; sports activities, including traditional and adaptive sports such as sitting volleyball; specialized rehabilitation group sessions; individual exercise programs conducted outside the class schedule; art therapy sessions; wellness massage services; training students in wellness and self-massage techniques; and organizing hiking and tourist trips to promote physical and social rehabilitation.
- Labor rehabilitation was facilitated by establishing special or specially adapted workplaces for conducting educational practice sessions and practical classes.
- Professional rehabilitation is implemented by fostering positive motivation among students with disabilities toward professional training (Fig. 6.1), organizing the educational process methodologically, establishing integrated groups, and creating conditions for individualized training plans. Additionally, it included

Fig. 6.1. Physical rehabilitation in ERIHE KPSI

organizing extracurricular activities to optimize interpersonal communication, provide opportunities for self-expression and self-affirmation, and encourage active participation in the social life of the group, institution, and community. Teacher and group supervisor training was also conducted to identify and address the challenges faced by students with disabilities in adapting to the educational environment.

- Social rehabilitation is conducted through social and household patronage provided by medical professionals, social pedagogues, and group supervisors.
- Psychological-pedagogical rehabilitation is focused on identifying the psychological characteristics of students with disabilities, preserving their mental health, supporting their adaptation and integration into the educational environment, and fostering self-assertion and accurate self-assessment of their abilities.

At the beginning of the full-scale war in Ukraine, the rector and Academic Council of the Institute initiated the creation of an environment for hippotherapy at the Institute's summer camp (Fig. 6.2). Hippotherapy, or therapy involving horses, is a recognized and effective method of rehabilitation supported by the Ministry of Health of Ukraine. It is included in treatment protocols for children with organic central nervous system lesions. As a form of medical and social rehabilitation, hippotherapy offers significant benefits for physical and psychological recovery.

ERIHE KPSI's educational policy focuses on fostering inclusivity and equity, offering accessible admission pathways and inclusive practices that increase higher education opportunities, particularly for students

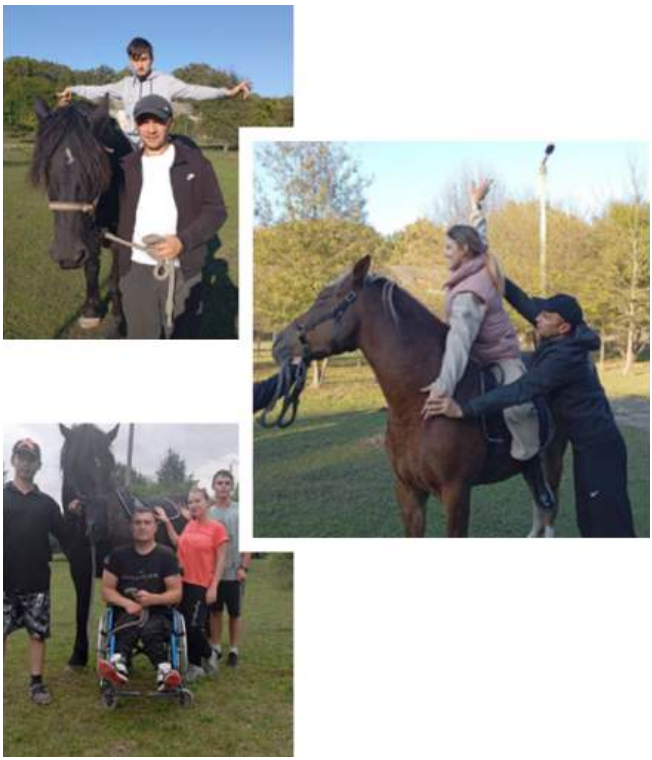

Fig. 6.2. Horse therapy rehabilitation in ERIHE KPSI

with disabilities. ERIHE KPSI is dedicated to implementing innovative and strategic initiatives that strengthen the reach and impact of its educational programs, enabling the institution to adapt to evolving educational contexts and seize new opportunities to engage with young people.

To support the sports rehabilitation of students with disabilities, ERIHE KPSI actively develops Paralympic sports programs. These include sitting volleyball (with ERIHE KPSI students serving as members of the National Women's Sitting Volleyball Paralympic Team), Para arm wrestling, and bocce. Additionally, plans are underway to establish a hockey field to expand rehabilitation and sports opportunities further (Fig. 6.3).

Fig. 6.3. Students of ERIHE KPSI excelling in Paralympic Sports and achieving championship titles

Physical rehabilitation aims to support or restore the health of individuals with disabilities. This process is carried out through various activities, including physical education classes tailored to specific medical conditions, traditional and adaptive sports (e.g., sitting volleyball), rehabilitation group sessions, individual physical education classes outside the regular schedule, art therapy, and health massage services.

The primary goal of these activities is to restore lost functions and improve students' overall well-being. Each rehabilitation program adopts an individualized approach, with exercises and physical loads carefully selected to meet each student's needs.

Swimming classes, conducted using modern physical therapy methods and supported by the systematic work of the swimming section, play a key role in enhancing physical fitness and health. Throughout the study period, medical professionals constantly supervise students with special needs, ensuring their safety and well-being.

Creating a Barrier-Free Environment and Volunteering

The creation of barrier-free access to all premises of social infrastructure and the provision of necessary technical resources are crucial for the comprehensive rehabilitation of students with disabilities. These resources include mobility aids (wheelchairs, canes, walkers, handrails, crutches), orientation tools, and devices for information exchange (dictaphones, mobile phones for written communication). Additionally, self-care aids (knee pads, elbow pads, anti-bedsore cushions), personal hygiene tools (special chairs, toilet seats, bath stands, washbasins), and specialized educational equipment (distance learning resources, multimedia devices, copiers, sound amplification systems, voice recorders, laptops) are essential.

Specialized equipment, such as cardio trainers, strength trainers, and additional tools to enhance physical capabilities, is also provided for physical education and sports. These measures ensure that students with disabilities have access to an inclusive and supportive educational environment.

Since 2016, ERIHE KPSI has focused on increasing student enrollment, particularly among students with special needs–such as orphans, children deprived of parental care, internally displaced persons, individuals affected

by the war, and young people with disabilities. The institution provides educational and rehabilitation services tailored to their specific needs and individual rehabilitation programs based on their medical conditions.

In collaboration with charitable organizations, including the "Sunflower Community Fund", ERIHE KPSI began developing a barrier-free educational environment as part of the "Equality for Everyone" project.

Students at ERIHE KPSI are encouraged to grow as active, initiative-driven individuals who strive to impact society positively. Regardless of gender or health challenges, they are empowered to contribute meaningfully, influence societal progress, and help build a better future for their country as full-fledged community members.

The student body of ERIHE KPSI acquires professional knowledge and actively addresses youth-related issues in collaboration with the administration. To support this, the institution has established a Student Council, led by an elected Chairman chosen through a secret ballot (Fig. 6.4).

Fig. 6.4. Together toward an inclusive environment: students and rector of ERIHE KPSI

Democracy, freedom of speech and thought, and opportunities for intellectual and professional growth accompany students from the moment they apply for admission to the institution. The rector and faculty support and encourage any initiative or project proposed by students.

This inclusive and collaborative approach, promoted by the Institute administration and rector, fosters active engagement from all participants in the educational process. It embodies the principles of European open and inclusive education, aimed at preparing intellectually developed and competitive specialists who are well-equipped to meet contemporary challenges and requirements.

The collaborative efforts of the teams at the Vocational College and the Institute have been remarkable since the onset of the Russian Federation's war against Ukraine. The educational institution’s staff members have been actively collecting funds to purchase ammunition, a special-purpose vehicle for the military, and food supplies for both the front lines and internally displaced persons (IDPs).

A notable contribution includes producing and delivering 1 600 trench candles to the front. In the initial days of the war, staff members donated a portion of their salaries, raising over 300 000 UAH to support the Armed Forces and local territorial defense units. Approximately 50 % of the team is engaged in volunteer activities, with two teachers serving in the Armed Forces since the beginning of the war. Additionally, fairs and auctions were organized, with the proceeds to support the military. This joint effort exemplifies the institution’s commitment to national resilience and support during a time of crisis.

The most recent charity auction was organized to support the rehabilitation of wounded soldiers who are also HEIs employees. Rehabilitation specialists also dedicate their efforts to arranging leisure activities for internally displaced children, including sports such as tennis, football, and volleyball. Additionally, medical, rehabilitation, and psychological-pedagogical assistance is provided to children and internally displaced persons in need.

The College, alongside the Institute, remains deeply committed to the welfare of children affected by the war, particularly orphans. The institution has welcomed orphans from occupied territories, offering full support, educational opportunities, and social and psychological assistance.

The Institute, in close collaboration with the public organization "*Protection of the Rights and Interests of Youth with Disabilities 'Bezbarernist*" (led by Kyrylo Bogdanyuk) and volunteer Oleksandr Hlibka, consistently provides support to several boarding schools and their choirs, including *Oleshkiv Children's Boarding School, Bogoduhiv Specialized School, KZ Nizhinsky Children's Boarding School*, and internally displaced children with disabilities living in a boarding school in the village of Orinin.

This cooperation extends beyond immediate assistance, encompassing initiatives to protect the rights and interests of youth with disabilities. The Institute and "Bezbarernist" work together to develop and implement socio-cultural, socio-economic, and political projects, often in partnership with Ukrainian, foreign, and international organizations.

Psychological and Pedagogical Support and Activity in ERIHE KPSI

ERIHE KPSI houses two units dedicated to providing socio-psychological and pedagogical support: the Psychological and Pedagogical Department and the Laboratory of Psychological Trainings and Counseling.

The Psychological and Pedagogical Department aims to foster the comprehensive social, personal, and intellectual development of young people, as well as to create conditions that inspire motivation for self-education and self-development.

The department's specialists successfully provide psychological support and enhance the effectiveness of the pedagogical process by:

- Promoting the full development of students' personalities and fostering motivation for self-improvement and self-directed learning.
- Safeguarding the social well-being of all participants in the educational process, including pupils, students, and teaching staff.
- Assisting students in adapting to new learning environments.
- Organizing events to prevent and address deviations in psychophysical, personal, and intellectual development.

This comprehensive approach ensures a supportive environment for all members of the educational community, contributing to both academic and personal success.

Regular activities for youth at ERIHE "Kamianets-Podilskyi State Institute" include scientific events (conferences, round tables, webinars), trainings,

support groups, and volunteering initiatives. At the local level, students participate in events organized by the Institute's teachers and specialists from the Psychological and Pedagogical Department. These events include (Fig. 6.5):

- Activities as part of the All-Ukrainian campaign "*16 Days Against Violence*".
- Trainings during the All-Ukrainian Anti-Bullying Week, such as "*Let's Say No to Bullying*" and "*What Do I Know About Bullying?*".
- A student-focused quest titled "*Take Care of Yourself*", aimed at promoting mental health awareness and encouraging a positive attitude toward mental well-being as a key element of a successful life.
- Training sessions on "*Live is Free*", dedicated to the European Day Against Human Trafficking.

Fig. 6.5. Activities organized by the Psychological and Pedagogical Department at ERIHE KPSI

- Group consultations such as "*Anti-Burnout: Resources for Recovery and Stabilizing Your Condition*", organized as part of the project "*Her Strength: Support for Women of Ukraine in Times of War and Recovery*".

Students also actively participate in the international project "*Social Actions of Youth and Authority*", designed for young people seeking to improve their communities. Through this project, participants gain practical knowledge about youth policy, communication strategies, advocacy campaigns, and the GESI (Gender Equality and Social Inclusion) approach.

Additionally, specialists from the Psychological and Pedagogical Department regularly assess the adaptation process of students using methods such as observation, conversations, social support groups, and analysis of interpersonal relationships within student groups.

The Laboratory of Psychological Counseling and Training provides higher education applicants with practical experience and opportunities to apply their theoretical knowledge in real-world settings, preparing them for future professional activities (Fig. 6.6).

Fig. 6.6. Laboratory of psychological counseling and training in ERIHE KPSI

To uphold the rights of students with special educational needs and disabilities to access higher education, and to support the implementation of the **National Strategy for the Creation of a Barrier-Free Space in Ukraine** (under the auspices of the First Lady of Ukraine, Olena Zelenska) for the period until 2030, the institute has launched a pilot project–the creation of the **Student Support Center**.

Representatives of the Student Support Center at ERIHE "Kamianets-Podilskyi State Institute" actively participate in a working group led by Deputy Minister of Education and Science of Ukraine, E. Smirnova, focusing on the development of methodological foundations for inclusive education in higher education institutions.

The center provides methodological, educational, psychological, and advisory assistance to students. Its primary goal is to implement state educational policies that support individuals with special educational needs within a barrier-free environment. The institution welcomes students requiring inclusive support from across Ukraine, including regions such as:

- **North:** Chernihiv, Zhytomyr, and Kyiv oblasts.
- **South:** Odesa, Mykolaiv, Zaporizhzhia, and Kherson oblasts.
- **West:** Khmelnytskyi, Chernivtsi, Zakarpattia, Ivano-Frankivsk, Ternopil, Volyn, Rivne, and Lviv oblasts.
- **East:** Luhansk oblast.
- **Center:** Vinnytsia, Poltava, and Kirovohrad oblasts.

Social pedagogues and psychologists at the institute continuously enhance their professional skills by integrating international best practices, particularly from Israel and the United Kingdom.

Conclusions

The cooperation of ERIHE KPSI with local and national government entities, charitable organizations, and international initiatives has been instrumental in creating and advancing an inclusive environment. This collaboration fosters a society of creative and proactive young people, addresses pressing challenges, and establishes effective frameworks for providing education and rehabilitation for youth under martial law.

The development strategy of ERIHE KPSI outlines the systematic pursuit of key objectives across all areas of the institute's activities. These include

launching new educational programs, modernizing inclusive education to align with contemporary needs and European integration, developing innovative approaches and methodologies for inclusive education, expanding research on building an inclusive society, and broadening the institute's international engagement.

ERIHE KPSI's operations are fully aligned with the goals of the **National Strategy for the Development of Inclusive Education** (2024–2029), as approved by the Cabinet of Ministers of Ukraine on June 7, 2024 (Order No. 527-r). The institute offers specialized educational conditions, rehabilitation services, and other support for students with special needs. Its unique model integrates educational, scientific, and social-rehabilitation components, providing comprehensive support to students with disabilities, those deprived of parental care, defenders of the country, and internally displaced persons.

Today, Ukrainian higher education institutions must embrace a distinct role in creating inclusive environments and contributing to an accessible and open system of inclusive education and science. ERIHE KPSI prioritizes equipping students with disabilities and special educational needs with professional training that adapts to labor market demands, ensuring their social protection and enhancing the competitiveness of graduates.

ERIHE KPSI has already achieved significant milestones and remains committed to advancing a robust social-psychological, medical-social, educational, scientific, and rehabilitation ecosystem. This holistic approach ensures the consistent delivery of high-quality educational services to students with special needs, spanning vocational and technical training, professional pre-university education, and higher education levels.

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Chapter 7.
Social dimensions of university resilience: a case study of I. Horbachevsky Ternopil National Medical University

Sofiia Husak[1], Oksana Shevchuk[2], Mykhaylo Korda[3], and Arkadii Shulhai[4]

Introduction

The complexity and diversity of the programmes offered, as well as the uncertainty caused by the COVID-19 pandemic and the outbreak of a full-scale war, force educational institutions to constantly adapt, demonstrating flexibility and resilience while maintaining high teaching standards and sustainable development. Distance learning has become an essential requirement in today's rapidly changing world.

With the outbreak of the war, volunteerism has become an integral part of the culture and worldview of the Ukrainian nation. Notably, young people are actively involved, demonstrating a strong sense of civic duty. This shared effort unites students from Ukraine and abroad, fostering intercultural exchange and cooperation. The value of volunteerism lies in the interaction between generations and the community-oriented exchange of experiences. It provides medical students with knowledge beyond the traditional university curriculum, sharpening critical communication skills and helping students better understand the contextual health issues community members face (Zheng et al.,2021). Simulation-based learning

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has become an integral part of the traditional education of medical students, contributing to the development of communication skills, teamwork, professional expertise, and cognitive skills. The Simulation Training Center serves not only as a training facility for medical students but also a vital educational resource, addressing community needs during periods of crisis.

Teaching and Learning

With the start of the full-scale invasion, the educational process at I. Horbachevsky Ternopil National Medical University (TNMU) has been conducted in a blended format. All Ukrainian students study onsite. To ensure the safety of students, all university buildings are equipped with shelters where students can take cover during air raid alerts. International students study in a mixed format, attending classes in person and others participating synchronously online. In clinical departments, in-person students engage in practical sessions at the bedside of patients, developing necessary practical skills, while online students work with virtual cases, presenting their findings at the end of the session.

In a blended learning environment, a substantial portion of the learning process takes place outside formal educational institutions. This is due to the flexible and adaptable nature of blended learning, which allows students to tailor their learning routines to their individual needs. However, it is essential that students effectively leverage the opportunities provided by blended learning by engaging in independent and self-directed learning practices (Ballouk et al., 2022). The blended learning format affects the learning behavior of medical students, challenging traditional forms of education while also requiring teachers to possess excellent facilitation skills, manage both in-person and remote audiences, and evenly distribute time among all participants in the educational process.

Regular peer group meetings provide substantial support to teachers. These groups offer a safe, collegial environment where they can share experiences and discuss pedagogical cases from their practice. Peer groups have been successfully functioning at TNMU since 2021.

The Peer Group initiative was made possible through TNMU's participation in the Ukrainian-Swiss project "Development of

Medical Education in Ukraine". Through the project, university teachers have had the opportunity to undergo training in teaching proficiency, feedback facilitation, peer group strategy development, and project management, and to implement the acquired knowledge.

To support the educational process and enhance technology use, faculty members upload video lectures to the repository, accessible through Moodle and YouTube. The university employs virtual learning programs, including "Body Interact – clinical reasoning education" for studying clinical cases in internal medicine and neurology. International educational platforms bolster the quality of distance education, offered free of charge during wartime. These include platforms from Elsevier Health (ClinicalKey, Complete Anatomy, Osmosis), AMBOSS, and EBSCO (DynaMed, Nursing Reference Center Plus, Rehabilitation Reference Center). TNMU students and faculty also have free access to short-term online courses via FutureLearn, as part of the Twinning program from UK Universities and Cormack Consultancy Group.

TNMU collaborates with the powerful learning platform Lecturio, which provides unprecedented support to Ukrainian higher medical education. To mitigate the impact of potential power outages and ensure quality education for students during wartime, Lecturio has developed a mobile app (Lecturio Android and iOS). TNMU faculty and students also have free access to the English-language educational programs of Henry Stewart Talks Ltd (HSTalks), which include multimedia lectures from leading experts worldwide. These programs are part of The Biomedical & Life Sciences Collection, featuring animated presentations and seminar-style talks for medical schools. Ternopil National Medical University is a member of the Twin For Hope partnership programme with UK universities. Within the framework of this programme, there is active cooperation with the University of Manchester, which provides academic support and shares educational materials, holds regular online webinars and workshops at the request of university teachers. The opportunity to use international professional educational platforms that meet the highest quality standards free of charge allows us to keep the quality of the educational process in focus despite daily challenges.

Box 24:

Case: Establishment of the Centre Teachers Excellence (CTE)

At TNMU, in 2022, an independent structural unit was established under the Internal Quality Assurance Department to promote pedagogical and professional development, enhance creativity and professionalism among the faculty, and build their capacity. CTE was created with the mission to provide continuous professional development for the university's academic staff, improving their ability to responsibly perform their professional duties and functions. CTE is a hub for creativity, mobility, and active support of academic staff, providing an effective platform for professional and individual development.

CTE vision focuses on active participation in the university's educational process and contributing to the formation of its educational strategy. The principles guiding CTE activity are based on continuous improvement and professionalism, fostering creativity, critical thinking, supporting a culture of student-centered learning, academic integrity, and freedom. CTE also promotes academic mobility and lifelong learning for instructors.

Quality assurance in the university is maintained on three levels: institutional, programme, and individual. The first level – institutional – involves the development of both short- and long-term strategic plans aimed at improving internal quality assurance systems. The programme level covers all necessary measures for evaluating, updating, and structuring academic programs. The third level – individual – consists of projects that help academic staff achieve their goals by implementing modern methods that enhance the quality of teaching and student learning, as well as encouraging the adoption of student-centered teaching approaches.

CTE operates mainly at the second and third levels of quality assurance. On its website, relevant information regarding different aspects of teaching improvement and soft skills development is organized into categories. This allows faculty to access lectures, online courses, or training at their convenience, helping them acquire the necessary skills.

One of the key activities of CTE involves selecting trainers and organizing various forms of training for academic staff. CTE has developed a professional development course titled “How to Teach Students to Communicate: Interactive and Student-Centered Methods” and conducted training on “Enhancing Pedagogical Competence: Challenges During Crisis,” in response to faculty requests.

Source: TNMU (2024)

University Volunteer Outreach

Active volunteer activities at TNMU began in 2014 during the Revolution of Dignity. Research indicates that over 90 % of doctors view participation in community life and health promotion as an important and necessary aspect of their profession. However, only 39 % of doctors engage in volunteering throughout the year (Metzger et al., 2024). For medical students, volunteering offers valuable opportunities for self-discovery, the development of social work skills, and hands-on experience. Studies have demonstrated that volunteer activities have a positive impact on the academic success of medical students, showing a clear correlation between these activities and their annual grade point average (Alsuwaidi et al., 2016)

Medical education is often linked to high levels of stress, tension, fatigue, burnout, and exhaustion. These factors can negatively impact academic performance and lead to a significant decline in empathy, beginning as early as the third year of study (Phillips et al., 2022). Volunteering serves as an important means of fostering resilience, empathy, and overall well-being among medical students. According to Zheng et al. (2021), volunteerism is valuable because it fosters interaction between generations. This engagement offers medical students knowledge that goes beyond the traditional university curriculum, enhances their critical communication skills

Volunteering has a positive impact on mental health. Social work and active civic engagement reduce stress levels and improve the quality of life among medical students, regardless of their year of study (Duncan et al., 2023). They can also serve as useful tools for preventing burnout

among students and healthcare professionals (Metzger et al., 2024). Volunteering is also about leadership. Organizing events requires excellent communication skills, digital skills, teamwork, and emotional intelligence development.

The volunteer activities of students in Ukraine have deep historical roots. A prominent example is the “Medical Society,” which was composed of Ukrainian medical students and operated from 1910 to 1944 with the support of the Ukrainian Medical Society (Bilavych et al., 2022). This organization stands out as a unique national phenomenon in the provision of public healthcare in Galicia, unparalleled in the history of Ukrainian medicine. The society exemplified the high degree of civic consciousness, patriotism, and self-sacrifice among students for the benefit of the Ukrainian people. It was primarily dedicated to delivering medical services to underprivileged populations, including widows, orphans, war veterans, disabled individuals, as well as providing pediatric and youth healthcare services. The “Medical Community” activities reflect a profound sense of moral and social responsibility among the student population in early 20th-century Galicia. Their work highlights the application of medical knowledge in addressing public health challenges and offering free medical care to vulnerable groups, establishing a significant precedent in both national and European medical volunteerism (Bilavych et al., 2022).

The volunteer movement at TNMU has a long history of charitable work, encompassing various initiatives. These include supporting orphanages, geriatric homes, hospices, and providing first aid training for civilians and the Armed Forces of Ukraine. Additionally, the movement focuses on educating children about pressing issues such as HIV infection and early pregnancies. The main goal of the university's volunteer initiative, “MISERICORDIA,” is to support sick children and elderly individuals with disabilities. For nearly ten years, medical students have consistently visited social care facilities to provide assistance and companionship.

With the onset of the full-scale invasion, the volunteer movement redirected its efforts toward supporting the military and gathering humanitarian aid. From the very first days of the war, students and faculty began sorting food, medicine, clothing, hygiene items, and more, which were supplied by the local community and international partners (Fig. 7.1).

Fig. 7.1. Volunteer activities in TNMU

Source: TNMU (2024)

Collaboration with foreign partners is highly valuable for the university, particularly when it encompasses volunteering opportunities in addition to scientific partnerships. As part of the partnership between TNMU and Akkon University of Humanities in Berlin, Germany, the Institute for Research on International Aid (IRIA), Professors Timo Ulrichs and Gaby Feldmann have established themselves as reliable partners, consistently providing humanitarian assistance. One notable project is the joint podcast initiative, which aims to support healthcare professionals in Ukraine during times of war. These podcasts cover a variety of medical topics, addressing common clinical challenges faced by medical and nursing staff in such difficult circumstances. Additionally, the University of South Bohemia in České Budějovice has maintained a long-standing partnership with TNMU in areas of education and research, and it is now actively engaged in volunteering efforts. Dr. Sandor G. Vari, President

of the RECOOP HST Association and Director of International Research and Innovation Programs at Cedars-Sinai Medical Center in Los Angeles, California, collaborates with the university on several fronts, including volunteering initiatives. Furthermore, the university's longstanding partners, IGeneX, which specializes in Lyme disease and tick-borne disease testing, have also extended their support

A particularly noteworthy area of research involves the volunteer activities of medical students in the Czech Republic, who assisted thousands of Ukrainian refugees arriving daily at Prague's central train station. According to Motlová et al. (2023), the study identified five emotionally challenging situations faced by the students: caring for injured refugees, dealing with refusal of treatment, disruption of daily routines, making independent decisions, and navigating the complexities of volunteer work. Throughout this experience, the students utilized both adaptive and maladaptive coping strategies in response to stress and trauma. Nearly half of the students reported signs of secondary traumatization and moral distress; however, none sought psychological support. This highlights the need for medical education curricula to incorporate training on trauma-informed care, promote healthy coping strategies, and destigmatize psychological issues (Motlová et al., 2023).

Both scientists and medical practitioners actively collaborate with the university and provide medical supplies. For instance, Italian physician Carlo Pedrina has generously donated essential medications to the volunteer center on several occasions. The university greatly values this partnership. Faculty members of TNMU regularly contribute to the volunteer center by donating and organizing various events, including scientific gatherings, to raise funds. For example, participants of the international conference titled "Prospects for the Development of Medical and Physical Rehabilitation at Different Levels of Medical Care," held on September 28-29, 2023, donated all organizational fees to the volunteer center.

Volunteering has become a matter of honor among the community. In celebration of the 95th birthday of former university rector Ivan Smiyan, all congratulatory messages were converted into donations for three FPV drones (Fig. 7.2), a charging station, and medical supplies.

Fig. 7.2. FPV drones
Source: TNMU (2024)

Students and faculty at the university are engaged in significant efforts to provide the Armed Forces of Ukraine with essential medical supplies, including personal first-aid kits. The staff at the volunteer center sorts medical supplies, hygiene items, and other essentials donated by international partners and donors. TNMU participates in the operations of the "Volunteer Warehouse of the Ministry of Health," ensuring that Ukrainian healthcare institutions receive the necessary medications and medical supplies based on requests registered in the MEDDATA system (Fig. 7.3)

The TNMU Volunteer Center offers psychological support to internally displaced persons and provides dental care to military personnel, territorial defense forces, and displaced individuals at the university's dental clinic. Faculty members from both the Simulation Training Center and the Department of Disaster Medicine and Military Medicine regularly conduct voluntary pre-medical care courses under extreme conditions. Currently, some faculty members and students from TNMU are serving in the Ukrainian Armed Forces, contributing to the defense of the country.

Fig. 7.3. The TNMU Volunteer Center
Source: TNMU (2024)

Fig. 7.4. Making trench candles
Source: TNMU (2024)

"TNMU Crafts Hub" encompasses the production of trench candles, camouflage nets, and suits, along with the sewing of underwear and knitting of socks by both students and faculty (see Fig. 7.4). Volunteers assist in preparing food and sorting medical supplies, hygiene products, and food at humanitarian hubs throughout Ternopil, across Ukraine, and even internationally.

The university often hosts charity recitals to raise funds for various needs, including gifts for children with cancer. Students independently prepare the programs for these events, which helps them develop their talents in the humanities.

Simulation Training

Simulation-based learning has become an essential component of medical education, significantly enhancing the development of communication skills, teamwork, professional expertise, and cognitive abilities. Improved coordination within multidisciplinary teams also increases the efficiency of medical responses during disasters (Shrestha et al., 2023). Additionally, simulation training aids students in developing their fundamental competencies and helps them manage the stress associated with emergencies and disasters (McCarrick et al., 2024).

The Simulation Training Center at TNMU serves as both a training facility for medical students with a practical exam conducted using the Objective Structured Clinical Examination (OSCE) format across four stations; and an educational hub that meets the community's needs during crises. Students who excel in the OSCE may earn certificates from the Ukrainian Council for Resuscitation and Emergency Medical Care (Fig. 7.5, TNMU, 2024).

Under an agreement between TNMU and the Ministry of Health of Ukraine, the project "Improvement of Health Services for People" is ongoing. In 2023, 102 instructors from the Ukraine's Emergency Medical Care and Disaster Medicine Centers were trained. Additionally, a methodological guide titled "Methodological Recommendations for Instructors" was developed. An on-line course consisting of video lectures and workshops for Emergency Medical Care professionals was also launched on the Prometheus platform, which has seen over 12,000 emergency medical service employees in Ukraine register for the program (TNMU, 2024).

Fig. 7.5. Simulation-based learning
Source: TNMU (2024)

In May 2023, a course called "School of Simulation Learning" was conducted for a group of faculty members from TNMU to enhance their pedagogical skills. Additionally, a series of first aid courses were held, which included programs such as "Emergency Medical Technician", "First Aid Instructor", and "First Responder at the Scene". In collaboration with the World Health Organization (WHO), the Simulation Center is implementing three projects: the international certified course "Advanced Life Support" (European Resuscitation Council) for instructors of the Emergency Medical Care and Disaster Medicine Centers of Ukraine; courses for members of disaster medicine teams deployed to liberated territories; and two courses on "Generic Instructor Course" (European Resuscitation Council) with the

participation of three international experts from Slovenia, Norway, and the Netherlands.

The concept of modeling and simulation (M&S) has long been an integral part of military training since the Second World War, when pilots and infantrymen trained on simulators and mock-ups to prepare for combat (Eubanks et al., 2022)

Ukrainian military medicine needs expanded, enhanced military medical training and high-fidelity simulation of long-term care for the wounded to improve its readiness in war. Most of the volunteers involved in providing healthcare services lack prior experience in military or emergency medicine. Simulation-based training has proven to be an effective approach for preparing military medical personnel, improving their knowledge and skills while receiving feedback from instructors, and shaping their professional identity (Shumaker et al., 2024).

The Simulation Center team conducted three international courses on "Inter-hospital Transport of Critical Patients" for emergency medical staff and academic personnel from medical universities in Ukraine, involving instructors from Portugal. Additionally, a master class titled "Massive Transfusion Protocol" was held with Brian MacMurray, a representative from the international collaboration group of the American College of Emergency Physicians (Fig. 7.6).

Tactical-specialized training in pre-hospital and emergency care during combat conditions, in collaboration with the Ministry of Internal Affairs, the State Emergency Service of Ukraine, the State Border Guard Service, the National Guard, and the National Police of Ukraine. Over the course of a year, the Department of Emergency and Simulation Medicine, with the support of the World Bank and the Ministry of Health of Ukraine, has trained 100 certified instructors for emergency medical centers. In 2023, the Simulation Training Center became Ukraine's first and only center to receive international certification from the European Society for Simulation (SESAM).

The staff of the Simulation Training Center consistently participate in international grant programs aimed at implementing and developing simulation-based learning, notably within the Ukraine-Swiss project "Medical Education Development" and "Safemed+". Collaboration has been established with specialists from simulation centers in Japan, Poland,

Fig. 7.6. Master class “Massive Transfusion Protocol” by Brian MacMurray
Source: TNMU (2024)

Lithuania, Portugal, Moldova, Kazakhstan, and Turkmenistan. Within the framework of cooperation with international organizations (WHO, IFEM, ICRC, Cadus, IMC, and others), the center’s staff have undergone training in programs such as: “Healthcare Facility Operations in Mass Casualty Incidents”, “Tactical Medicine”, “Emergency Medical Teams Operations in Chemical Threats”, “Coordination of Emergency Medical Teams”, “Emergency Medicine Course”, “Emergency Medicine Instructor Course”, and “Critical Patient Management on board Helicopters”.

The center's staff also served as consultants for the WHO European Office in developing and conducting simulation training on the “Management of Severe and Critical Adult and Pediatric Patients” for healthcare professionals and academic staff from medical universities in Central Asia. Additionally, the Centre's staff conducted training in five hospitals on the “Healthcare Facility Operations in Mass Admissions of Victims” in Kramatorsk, Selidovo, Zaporizhzhia, Kherson and Volyn.

The team of the Centre and the Department of Emergency and Simulation Medicine conducted training for instructors of training departments at twenty-five Emergency Medical Centers and Critical Care

Units across Ukraine. Specialists from the center also participated in a Ministry of Health project aimed at standardizing student education on cardiopulmonary resuscitation (CPR) in medical universities, during which they conducted 14 two-day workshops for all institutions of higher education subordinated by the Ministry of Health.

In 2023, the staff of the Simulation Centre participated in the International Olympics within the framework of the European Congress of Emergency Medicine "EUSEM" (Barcelona, Spain – September 2023), as well as in the International Cardiopulmonary Resuscitation Championship within the framework of the International Congress of the European Resuscitation Council (Barcelona, Spain – November 2023). They also served as part of mobile disaster medicine teams from the Ukrainian National Scientific and Practical Center for Emergency Medical Care and Disaster Medicine (UNPC EMCD) of the Ministry of Health of Ukraine, providing medical aid in Kherson, Donetsk, Sumy, Zaporizhzhia, Mykolaiv, and Kharkiv regions.

An essential aspect of the Simulation Center's work is its information and communication activities, including producing video content and disseminating educational materials on the center's social media platforms, particularly on the YouTube channel "TESIMED – Center for Medical Simulations". The center has also fully operationalized a 600-square-meter shelter, which, if necessary, houses all training laboratories and stations for the Objective Structured Clinical Examination (OSCE).

The Simulation Center plays a critical role in supporting the educational process for higher education students and in conducting knowledge assessments in the form of the OSCE. This exam is an integral part of the Unified State Qualification Exam (USQE) for students in Medicine, Dentistry, Physical Therapy, and Occupational Therapy. As part of the ongoing practical skills assessments, the OSCE was conducted for third, fourth, and fifth-year medical students, as well as third and fourth-year Dentistry students. Notably, despite the war and missile threats, the deans, along with the preparation and examination team, ensured that all regulations and instructions were strictly followed, and the students were assessed objectively. Standardized patients were involved at the OSCE stations, and all checklists were digitized. Students' practical skills algorithms were assessed using tablets and specialized computer software.

For students studying remotely from outside Ukraine, the center introduced a new format for OSCE, using virtual simulation of clinical cases as part of the SAFEMED+ project, “Simulation-Based Learning in Undergraduate Medical Education to Improve Patient Safety and Quality of Care”.

Conclusions

To ensure the quality of the educational process during a crisis, flexibility, adaptation, and resilience as a part of sustainable development are of paramount importance. A blended learning format allows students to receive educational services either in person or remotely, depending on circumstances and helps retain international students by offering them the freedom to choose their preferred mode of study and effectively leverage the opportunities provided by blended learning by engaging in independent and self-directed learning practices.

Collaboration with international partners and access to high-quality educational platforms help maintain the standard of education at an appropriate level. The Center for Teaching Excellence has supported faculty in their continuous professional development, offering opportunities and providing essential up-to-date information, ensuring the sustainability of educational quality, especially in times of crisis.

Volunteering provides medical students with valuable community-oriented experiences that extend beyond the traditional curriculum of a medical university. It helps students gain a deeper understanding of the contextual health issues faced by community members. It positively impacts students' mental health, as active civic engagement and social interaction reduce stress levels and improve the quality of life for medical students. This engagement can also be beneficial for preventing burnout among both students and healthcare professionals.

Simulation-based learning contributes to mastering the basic competencies, teamwork, and quick decision-making in complex situations. It also helps students manage the stress associated with emergencies and disasters, developing rapid response skills in disaster medicine. Simulation has become an integral part of emergency and urgent medical education and is a highly demanded component of the educational process, particularly in times of war.

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Chapter 8.
Sustainable educational platform for regional recovery and social development: a case study of integrating educational initiatives and community projects

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Introduction

Where constant changes fundamentally transform approaches to education, there is a need for educational institutions capable of responding flexibly to challenges and ensuring societal development. This issue is particularly relevant for Ukraine, which faces a series of complex challenges brought about by the war. On the one hand, infrastructure destruction, population displacement, and the loss of skilled professionals demand adaptability and resilience from higher education institutions (HEIs). On the other hand, the war also presents opportunities for rethinking the educational model, reorienting it toward sustainable development, and aligning it with the current needs of society. In these circumstances, HEIs are not only responsible for preparing qualified specialists for rebuilding the country but also for playing a role as social institutions that support cohesion and foster civic engagement. Thus, the social impact of HEIs implies their ability not only to provide knowledge and skills but also to promote social integration, economic stability, and civic engagement within society. In the context of Ukraine's post-war recovery, these institutions become key players in rebuilding and modernizing processes. Their mission expands: they not only perform an educational function but also actively influence social processes, shaping a new generation of citizens who are adaptable, responsible, and conscientious. This is especially important when society needs professionals capable of responding to new challenges, supporting

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community development, and participating in the nation's recovery processes. From this perspective, HEIs that can quickly adapt to market needs and implement the latest innovative practices are particularly important.

Education as a Driver of Sustainable Development in Ukraine's Recovery

In Chernihiv, institutions such as the "University of Future Transformation", the "Institute of Professional Transformations", and the "University of Future Transformation College" create a unique educational system that provides not only the training of qualified professionals but also promotes the sustainable development of the region. This comprehensive approach to education, encompassing programs for young people, postgraduate education, and innovative projects, is increasingly significant given the challenges Ukraine faces due to the war.

Researchers often link the development of HEIs with the sustainable development of regions. This connection is explored through various dimensions, such as economic growth, social stability, and environmental sustainability (Pedro et al., 2022). The effectiveness of teaching, learning, and social responsibility within educational institutions also positively correlates with regional economic growth and innovation intensity (Fuchs et al., 2023). Adopting sustainable development goals in higher education institutions fosters the progress of social relations and synergy, reinforcing sustainable development strategies (Krukhmal & Kryklii, 2022). Institutional partnerships among education providers enhance the resilience of regional socio-economic development by promoting educational practices aligned with sustainable development. Such partnerships help to transform everyday practices and integrate educational content that strengthens regional resilience (Zinevich & Melekhina, 2023). Universities contribute to sustainable development by implementing strategies that address both global goals and local practices, thereby supporting the development of educational environments. Despite contemporary challenges, educational institutions play a transformative role, engaging diverse stakeholders, including administrators, teachers, and students, in sustainability initiatives (Hinduja et al., 2023).

At the same time, the war in Ukraine has posed serious challenges to society, especially for the education system. Many educational institutions

have been destroyed, a significant number of students and teachers have been forced to leave their homes, and there is an acute need for specialists capable of participating in the country's recovery processes. In these conditions, there is a demand for innovative and flexible educational models that could restore lost resources and contribute to transforming the region into a promising development zone. In this context, the educational complex in Chernihiv can play an essential role by providing basic youth training, professional retraining, and fostering social initiatives and projects to strengthen communities and promote gender equality.

HEIs play a key role in shaping a sustainable society, especially in the context of the social, economic, and environmental challenges faced by Ukraine. Integrating sustainable development principles into the activities of educational institutions not only prepares students for professional careers but also fosters socially responsible citizens. This is particularly relevant in the post-war period when there is a need not only to restore the economy but also to enhance social integration and community cohesion.

The Social Significance of HEIs in the Context of Sustainable Development and Post-War Recovery in the Chernihiv Region

This chapter focuses on studying the social significance of higher education institutions in the context of the sustainable development of the city of Chernihiv and the region as a whole. The educational activities of institutions such as the "University of Future Transformation", the "Institute of Professional Transformations", and the "University of Future Transformation College", which together form a logical system of educational institutions, create not only a new generation of highly qualified professionals but also play a key role in the social, economic, and cultural sustainability of the region.

University of Future Transformation (UFT). The university's activities, focused on innovative approaches and European integration, meet the current needs of the information society, preparing bachelor's and master's students in the fields of "Management," "Marketing," "Public Administration," and "Psychology." The university's educational mission emphasizes the development of innovative and strategic thinking, essential for social development and public administration in contemporary

conditions. This focus is especially relevant in the Chernihiv region, where there is a demand for specialists capable of implementing new management approaches and adapting to dynamic changes. The university is oriented toward future labor market needs and integration into the international arena. Importantly, the UFT is committed to training specialists in public administration, a critical area for the recovery and modernization of the country in the post-war period. Additionally, its programs in management, integrated technologies, and robotics pave the way for advanced technological solutions in infrastructure and economic rebuilding (Khudiakov & Sukhonos, 2021; He & Ding, 2022).

Institute of Professional Transformations (IPT). Founded to provide conditions necessary for personal and professional growth, the IPT enables individuals to deepen, expand, and update their professional knowledge, skills, and other competencies based on prior education and practical experience. The institute offers a wide range of advanced training and retraining programs, as well as various courses, including preparatory courses for the National Multidisciplinary Test in Ukrainian language, mathematics, and English, conducted online. The institute collaborates actively with community organizations and government institutions, organizing training and projects aimed at developing soft skills in youth and creating positive changes in the community. This role is vital for professional development and contributes to social integration and economic stability in the region. The official website of the IPT (https://www.ipt.cn.ua/) provides extensive resources for professional growth.

The IPT offers certification programs, including:

1. Professional training for civil servants.
2. Short-term program on “Public Information Access Law Implementation”.
3. Short-term program on “Information Security and Data Protection”.
4. Short-term program on “Communication and Interaction in Public Administration”.
5. Short-term program on “Anti-Corruption and Integrity”.
6. Short-term program on “Change Management”.
7. Short-term program on “Ensuring Rights and Interests of People with Disabilities”.

These certification programs play an essential role in sustainable development in Ukraine, especially in the context of post-war recovery and strengthening government institutions. Programs focused on public information access and public administration communication enhance transparency and accountability, strengthening public trust in government. Courses related to disability rights support inclusivity and equality, while change management and anti-corruption training align with principles of economic sustainability and efficient resource management. Thus, the IPT's certification programs not only enhance professional skills but also lay the foundation for a sustainable society where social justice, inclusivity, and transparency are valued.

University of Future Transformation College. The UFT College prepares students for future challenges, offering programs for junior specialists in "Management," "Marketing," and "Integrated Technologies and Robotics" (UFT College, n.d.):

- Program "Integrated Technologies and Robotics" prepares specialists to design, develop, implement, and maintain automated systems and robotic complexes. Covering diverse fields from industrial automation to artificial intelligence, graduates bring technological solutions that optimize production processes and enhance organizational efficiency.
- Program "Management" equips students with skills for effective organizational and resource management. Graduates are prepared for roles in human resources, financial management, and strategic decision-making, making them valuable contributors to the region's growing entrepreneurial activity.
- Program "Marketing" develops expertise in managing product and service promotion, meeting consumer needs, and analyzing market trends. Graduates drive competitive marketing campaigns, supporting regional businesses' interactions with consumers.

The college plays a crucial role in raising the professional competence of young people prepared for the modern knowledge economy and fostering the region's innovative potential. The UFT College employs advanced technologies and interactive methods, adapting students to rapid professional changes and workplace realities. The college's practical training,

aligned with the dual education model, bridges the gap between academic knowledge and real-world application. Dual education fosters sustainable social development by equipping students with workplace skills, enhancing their integration into the job market, and supporting economic stability through a qualified workforce.

Educational and Cultural Development Initiatives in Chernihiv

NGOs play a vital role in regions' cultural and educational development by improving public policies, offering alternative education, and organizing cultural activities. Despite facing challenges like resource constraints and economic inadequacies, their contributions significantly enhance communities' social and cultural fabric (Abiddin et al., 2022). For furthering cultural and educational development, the Educational Compass NGO was established, aimed at:

1. Supporting and developing informal education through seminars, training, and lectures in science, art, culture, and financial literacy.
2. Expanding educational opportunities for youth through preparatory programs for national exams, university entrance, and specialized programs to boost employability.
3. Promoting cultural exchange by organizing events such as exhibitions, film screenings, and literary meetings.
4. Enhancing digital literacy with IT and cybersecurity courses, enabling citizens to navigate the digital environment.
5. Engaging the community in volunteer activities and creating a network of volunteers for social and cultural projects that positively impact local communities.

On October 5, 2024, a youth space called “ROOF” was opened. This modern center for active and creative youth was designed for development, inspiration, and self-realization. Here, young people come together to find like-minded individuals, learn, share ideas, and implement new projects. The main areas of work at ROOF include training sessions and workshops (for personal and professional growth), a co-working zone (a comfortable space for work, study, and team meetings), thematic discussions and workshops (exploring current topics with experts to develop new skills), creative studios (a space for artistic ideas and inspiration), and

more. The activities of this space are focused on implementing projects that encompass youth development and social activity enhancement. Notably, the organization has implemented the "Informal Education Lecture Hall" project to equip young people with the knowledge and skills necessary for successful participation in social life and professional activities. Programs supporting youth initiatives and community development are also given significant attention, with active cooperation established with local communities. Thus, this space plays an essential role in developing youth initiatives and promotes social engagement among young people in the Chernihiv region by implementing projects to increase awareness, skill development, and support for community initiatives (Cheline, 2023).

The presented system of organizations collectively forms a resilient platform for community development, enabling an effective response to social, economic, and educational challenges, fostering integration and inclusion among diverse population groups, and ensuring sustainable regional development. For instance, with support from the "Educational Compass" NGO and the Institute of Professional Transformations, a project was implemented in the ROOF youth space for young people ready to take responsibility for their future and build successful careers. Under the project "Start Up: Career and Entrepreneurship," organized by the Youth Platform NGO with support from the Norwegian Refugee Council (NRC) in Ukraine and funded by the Norwegian Agency for Development Cooperation (NORAD), training sessions were conducted for interested individuals (primarily youth) from the Chernihiv region and Chernihiv city (Molodizhnyi prostir "ROOF", n.d.).

Thus, the network of educational institutions established in Chernihiv creates a unique environment for youth and adult development, supporting the sustainable social development of the region, and its active involvement in socially significant initiatives serves as a tool for sustainable development. Specifically, the University of Future Transformation and the Institute of Professional Transformations actively contribute to regional sustainability by participating in numerous initiatives focused on youth development, community support, and the implementation of gender and youth programs. These efforts not only meet regional needs but also

promote sustainable social practices that support integration, engagement, and equality in the communities of Chernihiv. For example:

1. Collaboration with the "Go Beyond" NGO and the "Informal Education Lecture Hall" project. The project "Skills for Young People's Public and Social Life via Informal Education" aims to help young people develop soft skills essential for active participation in public life. This initiative focuses on cultivating skills that not only foster individual student development but also contribute positively to the community. Young people acquiring new competencies, particularly in communication, leadership, and critical thinking, become active participants in social processes, increasing social cohesion within the region. These educational programs lay the foundation for sustainable development by nurturing conscious citizens capable of creating and sustaining positive changes.

2. Training sessions for territorial communities in the Chernihiv region. In partnership with the Regional Military Administration, the Institute of Professional Transformations and the University of Future Transformation conducted a series of training sessions titled "Restoring the Region's Future through Public Management Tools for Youth and Gender Initiatives". The primary goal of these training sessions was to develop and implement effective public management mechanisms to support youth and gender initiatives, ensuring these initiatives are integrated into regional recovery and development strategies. This approach allows communities to consider various aspects of social equality and inclusiveness, which are foundational to sustainable social development. Enhancing local leaders' competencies in gender equality and youth work strengthens civil society and ensures a long-term impact on social processes in the region.

3. Youth Space "PRIKOLEJ" as a platform for youth development. The university established the "PRIKOLEJ" youth space, a platform for youth initiatives and comprehensive support. Collaborating with the National Youth Center and planning educational programs like "Youth Worker" enables young people to acquire professional knowledge and develop skills for active participation in public life. This youth space not only provides a venue for meetings and idea exchange but also serves as an essential tool for regional sustainability by creating conditions for developing social initiatives oriented toward community needs.

Each of these initiatives demonstrates the integration of sustainable development goals into the work of educational institutions. Through these projects, the presented educational institutions not only educate students but also contribute to the region's overall social development, supporting youth integration into social life, enhancing community workers' professional competencies, and fostering positive community changes. Such activities are a powerful tool ensuring long-term positive regional impact and creating a foundation for sustainable development in the future.

In light of the growing need to foster a gender-equal society, universities and educational institutions play a crucial role in implementing initiatives aimed at promoting gender education and women's leadership. The University of Future Transformation and the Institute of Professional Transformations are active participants in such programs in collaboration with local and international partners (Rosa & Clavero, 2021; Condron et al., 2022):

1. Project “Gender Education for Youth”. This project aims to raise youth awareness on issues of gender equality, sexual education, and health. Educational programs and training sessions under this project equip young people with the knowledge and skills necessary for participation in social life and interpersonal interactions. This initiative, supported by partners like the Chernihiv Regional Administration's Department of Family, Youth, and Sports and international partners, is vital for achieving sustainable development goals. Educational activities prepare youth for social life and foster the formation of conscious citizens who will support gender equality and contribute to creating an inclusive society.

2. Project “Women's Voices and Leadership – Ukraine”. This initiative focuses on enhancing the role of women in public and political life, supporting gender equality and sustainable social development. Through educational programs, training sessions, and grant support, the project helps women acquire leadership skills, actively participate in decision-making processes, and implement their initiatives. Advocacy campaigns and support for network platforms create a favorable environment for experience sharing and strengthening women’s community organizations. These activities promote equality and strengthen the social fabric, laying the foundations for inclusive development and social justice.

Expected project outcomes include increased women holding leadership positions, more significant influence of women's organizations, increased public awareness, and decreased gender discrimination. Such projects significantly contribute to building a more equitable and sustainable society, providing women with professional and social growth opportunities, supporting youth, and fostering a new generation that values gender equality and inclusion.

Integrative Educational and Social Initiatives for Regional Recovery and Sustainable Development

In conclusion, HEIs in Ukraine today have become centers of support, promoting equal opportunities, inclusion, and the development of local communities. Programs that provide students with practical skills, along with projects on gender and civic education, help unite the population and meet labor market needs (Table 8.1). Environmental initiatives foster responsible attitudes toward the environment among students, laying the groundwork for sustainable development.

Table 8.1. Contribution of UFT, IPT, UFT College, "Educational Compass" NGO to sustainable development

Focus on Sustainable Development	Examples	Initiatives
Social Development	Integration and Inclusion – Support for youth, women, gender equality, and leadership development, fostering social integration and equal opportunities.	– The projects "Gender Education for Youth" and "Women's Voices and Leadership" promote greater participation of youth and women in social life.
	Community Cohesion and Local Identity Support – HEIs support communities, helping to preserve cultural identity and enhance social cohesion.	– Educational training sessions to develop leadership and civic skills.
	Youth Health and Well-being – Gender education, sexual health education, and lifestyle health prevention programs.	– Implementation of educational programs focused on enhancing civic engagement and local culture.

Focus on Sustainable Development	Examples	Initiatives
Economic Development	Professional Training and Skill Development – Educational programs providing practical skills to engage graduates in the post-war economy.	– Partnership with local organizations (regional state administration, territorial communities of the Chernihiv region, NGOs, and businesses) to support socially significant initiatives.
	Labor Market Demand Fulfillment – Programs aimed at preparing specialists in high-demand fields, contributing to economic stability.	– Programs on gender education and sexual health.
Ecological Development	Environmental Education and Awareness – Integration of environmental knowledge into curricula to foster responsible attitudes toward nature.	– Information campaigns and training for youth aimed at increasing health awareness and promoting positive behavioral models.
	Sustainable Practices in HEIs – Implementation of sustainable practices in daily activities (recycling, energy efficiency), serving as an example for students and society.	– Dual education programs that provide training and internships with local enterprises.

Table 8.1 highlights the role of the educational system described by the authors as a driving force for sustainable development, combining social, economic, and environmental sustainability. This system of organizations collectively forms a resilient platform for social, economic, and educational development, serving as a foundation for regional recovery and prosperity. Through the interaction of HEIs, community initiatives, and local partners, this system ensures a coordinated response to contemporary challenges, meeting society's needs. This approach promotes integration and inclusion, creating conditions for personal and professional growth, which is particularly important in the context of post-war recovery. Such joint activity not only strengthens local identity but also lays the groundwork for sustainable development, where each

participant has equal opportunities and support for contributing to the region's rebuilding and future.

Conclusions

Establishing a sustainable educational platform is a crucial step for regional recovery and social development, as it has the capacity to unite educational initiatives and community projects into a cohesive support system for local communities. Such a platform not only raises the population's educational level but also stimulates civic engagement by involving residents in the region's development process. Integrating the educational programs of the University of Future Transformation and the Institute of Professional Transformations with community initiatives enables more effective solutions to social and economic challenges, particularly through informal education, digital literacy training, cultural events, and volunteer projects. These initiatives foster new professional skills, stimulate entrepreneurship, and provide flexibility to the local economy. Consequently, the University of Future Transformation and the Institute of Professional Transformations not only fulfill their educational mission but also actively contribute to the creation of a sustainable, equitable, and socially inclusive society in the Chernihiv region. This work is an essential step toward building a society that ensures equal opportunities for all, supporting both individual and collective development at the regional level.

The social responsibility of these HEIs is evident in programs focused on community support and increased civic engagement. Through projects like "Women's Voices and Leadership" and "Gender Education for Youth", the university actively contributes to forming a more integrated and inclusive society. Gender education initiatives, youth leadership development, and community organization support help these institutions not only fulfill their educational mission but also influence social processes. As a result, they instill qualities in young people that enable them to take responsibility for their future, develop teamwork and community engagement skills, and be ready to participate in the region's and country's recovery processes.

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PART 4.
GOVERNANCE ASPECT OF ESG IN UNIVERSITIES

Chapter 9.
Ethical leadership and governance: examining the role of governance structures in advancing ESG principles at Kremenchuk Mykhailo Ostrohradskyi National University

Denys Zagirniak[1] and Dmytro Matuzko[2]

Introduction

The world trajectory in higher education is changing to strengthen university resilience. Are European and Ukrainian universities ready to change with it? In today's world, universities must balance diverse interests from stakeholders, employers, higher education applicants, regulators, and civil society. Through implementing ESG principles and strategies, universities empower their sustainability with good governance to lead themselves toward a sustainable future.

Sustainable development in higher education is a new way of doing education, where universities learn about solving issues of employer dissatisfaction, climate change, power supply disruptions, pandemics, and martial law. Sustainable development in higher education is a way forward

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through all of that by understanding the needs of your stakeholders and building a sustainable development strategy that works with all issues. Implementing ESG is a starting point for building a sustainable education process and, ultimately, a sustainable higher education in Europe and Ukraine.

Currently, in martial law conditions in Ukraine, the priority task of national universities is to achieve sustainable development. The implementation of ESG approach, above all, in governance processes, should help to realize this goal. Achieving good governance involves bringing the following indicators in accordance with the ESG principles: transparency in decision-making, stakeholder involvement in decision processes, etc.

The good governance principle is becoming critical for Ukrainian HEIs to ensure long-term sustainable development, as the quality of educational services directly depends on quality governance decisions. In martial law conditions, the university's resilience should be strengthened primarily through the good organization of the continuous educational process.

Basic Approaches of Implementing Governance as an ESG Principle

ESG is a set of aspects that include environmental issues, social issues, and corporate governance.

Camara (2024) notes that ESG principles are increasingly seen as critical to a company's long-term success. Integrating ESG considerations into a corporate governance framework can help companies manage risks, build trust with stakeholders, and create value over the long term. Belli-Bivar (2019) defined ESG as three central principles in measuring the sustainability and ethical impact of investments. At its core, ESG investment involves gauging a company's long-term, rather than short-term, sustainability.

According to Mukhtar et al. (2023), who investigated ESG principles, governance as one of ESG pillar is widely used in a company's Corporate Social Responsibility (CSR). Lately, ESG information has been everyone's concern due to its long-term impact on stakeholders' investments and is only limited to shareholders. In 2006, The United Nations (UN) mentioned ESG for the first time when it launched the Principles for Responsible Investment (PRI), which recommended that investors emphasize governance concerns and not only profit. According to Deloitte (2023), ***governance*** is one of 3 pillars in ESG principles and stands for good corporate

governance, which represents the most important topic area that companies are expected to report on. ESG aims to capture all the non-financial risks and opportunities inherent to a company's day-to-day activities.

Bruksle et al. (2023) note that using many different scoring ratings based on the ESG principles, companies can legitimately evaluate their condition and present their ways of managing the supply chain, carbon footprint, or corporate governance to investors and clients. Implementing ESG shows the maturity of the business processes and the willingness to monitor its impact. However, as Schmuck (2021) says, there are numerous challenges in implementing ESG at the HEIs. To solve these challenges, Schmuck proposes using a methodology that pairs the ESG strategies with matching ISO 9001 principles.

Aich et al. (2021) concluded that the consideration of good governance (GG) is a fundamental part of ESG (which was positioned at the bottom of the sustainable development principles hierarchy on level I). In the long term, good governance drives hierarchy level II with corporate policies, employee relationships, and human rights to achieve investment impact at the top of the principles hierarchy (Fig. 9.1).

Boshoff (2023) highlights that ***governance is a critical aspect of ESG***, even if it is not always discussed as much. Strong governance and controls can help organizations improve performance, and mitigate risk. As Boshoff (2023) says, "failure of corporate governance can negatively impact everything from its bottom line to recruitment costs. Unfortunately, there are many well-known examples of poor corporate governance. Poor corporate governance can lead to various issues including financial penalties, employee layoffs, devaluation, and even bankruptcy" (Boshoff, 2023).

However, Božić (2023) emphasizes that the governance aspect of ESG can be strengthened through ***information and communication technology (ICT)***. By implementing robust data governance frameworks, organizations can ensure the responsible and ethical use of data, safeguarding privacy and promoting transparency. ICT can also facilitate stakeholder engagement, enabling organizations to involve employees, customers, communities, and investors in decision-making and fostering accountability and trust. As Finatto et al. (2023) noted, HEIs are increasingly aware of their role in developing and implementing a sustainable paradigm, with the potential to

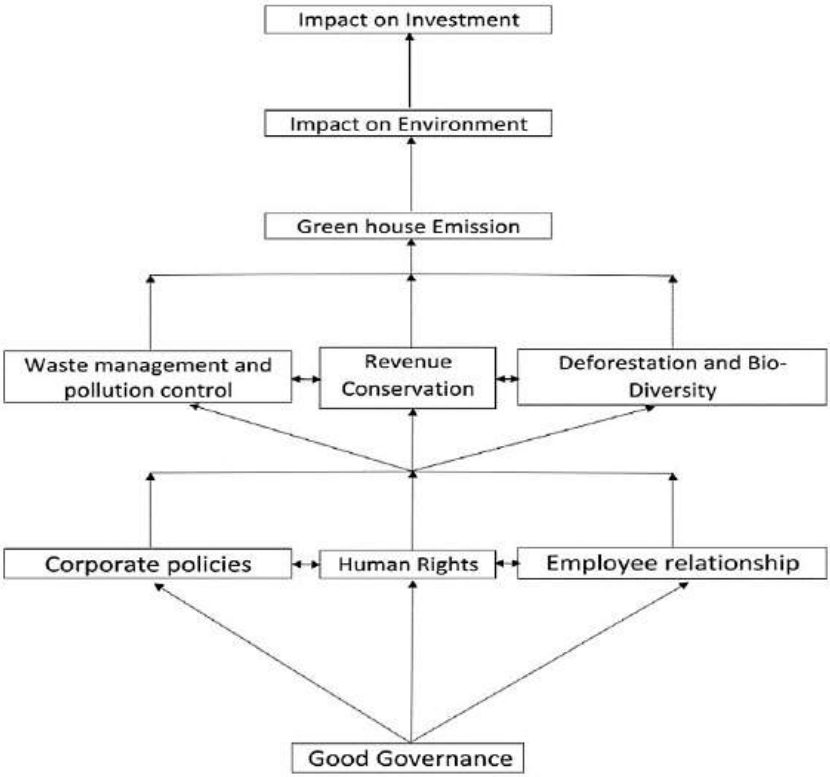

Fig. 9.1. ESG principles structure model

Source: Aich et al., 2021, p. 9

accelerate progress toward sustainable development. In their study based on the authors' experiences and participant observations made during the establishment of sustainability practices at the University of Southern Santa Catarina (UNISUL) Finatto et al. (2023) concluded that sustainability is present in UNISUL's educational and management processes as actions related to all SDGs and, thus, to all ESG dimensions. On the other hand, it was noted that many actions identified in the literature are absent, with governance being the dimension with fewer practices, thus indicating possibilities for improvement.

Dlouhá et al. (2017), in their research, concentrated on good university governance and its manifestation in HEIs in Central and Eastern European countries, which share a similar policy situation owing to post-socialist transition processes. Researchers note that opportunities for educators' competence development are lower and less diverse in Central and Eastern Europe than in other parts of Europe. However, ***governance policies*** were identified as key to support the overall governance activities in HEIs of Central and Eastern European countries.

Budzanowska-Drzewiecka et al. (2023) articulate that "sustainability, as the central axis of the university's contribution to the future, requires not only teaching and research but also management performance. Integration of ESG strategies and sustainability principles into the daily operations and governance structures of the university is usually formulated in the mission statement or strategy, or other officially agreed statements of university authorities" (Budzanowska-Drzewiecka et al., 2023, p. 6).

Koudelková & Klimeš (2023) discuss the importance or insignificance of customer pressure to implement ESG and sustainability. In the case of HEIs, students are customers of educational services, and for them, as well as for university governance structures, sustainable development of HEI is important in the long term. A survey by Koudelková & Klimeš (2023) on whether the companies interviewed are familiar with the concept of ESG revealed that more than 60 % (in total) of the respondents know ESG very well. Businesses and universities are most familiar with it (Koudelková & Klimeš, 2023). However, a survey on the ESG governance pillar showed that respondents placed medium (38 %) and low (18 %) priorities over high priority (27 %). Results of the Koudelková & Klimeš (2023) survey are shown in Fig. 9.2 below.

The role of HEIs governance structures in implementing ESG principles highlighted by some ESG indicators that are standardized across industries.

According to DeLong (2023), ***a key performance indicator (KPI)*** is a quantifiable measure usually used within a business context to evaluate how well a company is performing in a certain area. ESG KPIs are those applied within a specific ESG-related context or measured against

particular ESG criteria. The governance segment pertains to company policies and how they influence its decision-making across a range of business governance issues.

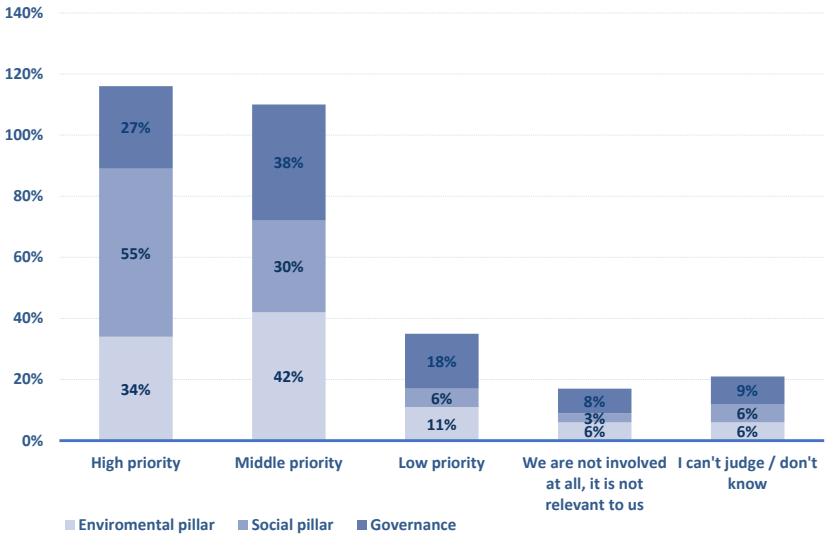

Fig. 9.2. What priority do you give to the 3 pillars of ESG in your organization?

Source: Koudelková & Klimeš, 2023, p. 9

Below, a list of Poltava region-oriented key ESG indicators of the governance pillar, which was implemented in the educational process of Mykhailo Ostrohradskyi National University (KrNU), is shown in Table 9.1.

Ethics and transparency are important ESG indicators that strengthen resilience. This indicator includes the relevant variables: transparency in decision-making, governance policies, stakeholder involvement in decision processes, and channels for feedback and complaints. Increased transparency of decision-making is achieved through the diversity of academic councils, governing boards, and other standing bodies.

Table 9.1. Governance pillar key ESG KPIs for Poltava region

ESG Indicators (KPIs)	ESG Variables (Dimensions)	Actions and functions of governance structures for implementing ESG principles
Ethics and Transparency	Transparency in decision-making	A code of academic ethics approved by academic council and implemented by committee on ethics
	Governance policies	The mission of university, sustainable development goals (SDGs) developed by governing board Internal quality assurance system developed by the methodological council
	Stakeholder involvement in decision processes	Developing and approving educational programs
	Channels for feedback and complaints	Considering suggestions and complaints on scientific activity issues by scientific and technical council A set of survey questionnaires developed by Center of quality monitoring and academic integrity "Call "Hotline" subsection implemented by governing board
Sustainable R&D Investments	Sustainability research projects	Researching the sustainable development and educational pragmatism of HEIs in Poltava region by Center of quality monitoring and academic integrity

Source: Author's own, 2024 (based on the KrNU information)

Also, ***sustainability research projects development*** is specifically-oriented actions of governance structures, as there are a lot of potential HEIs' investors and sponsors in Poltava region that may to strengthen resilience in the conditions of martial law.

Case of Implementation ESG Principles in Governance Structures Activities of Kremenchuk Mykhailo Ostrohradskyi National University

At Kremenchuk Mykhailo Ostrohradskyi National University (KrNU) the transparency in decision-making is the task of such governance structures:

- Scientific and Technical Council.
- Academic Council.
- Methodological Council.

On the KrNU website, meeting reports of the above-mentioned governance structures are publicly available for educational process participants, stakeholders, and everyone else. This provides maximum transparency in decision-making.

To provide sustainable development of Ukrainian HEIs in the conditions of martial law, such ESG indicator of the governance pillar as ***governance policies***, which involves the development and long-term implementation of the HEI's mission and main goals, is becoming critical. Thus, KrNU mission is based on four main principles (Figure 9.3): autonomy, academic integrity, academic mobility, academic freedom.

Governance structures also jointly implement SDGs. Thus, the KrNU website contains 17 sustainable development goals developed by Agenda for Sustainable Development and adopted by the United Nations (KrNU, 2024a).

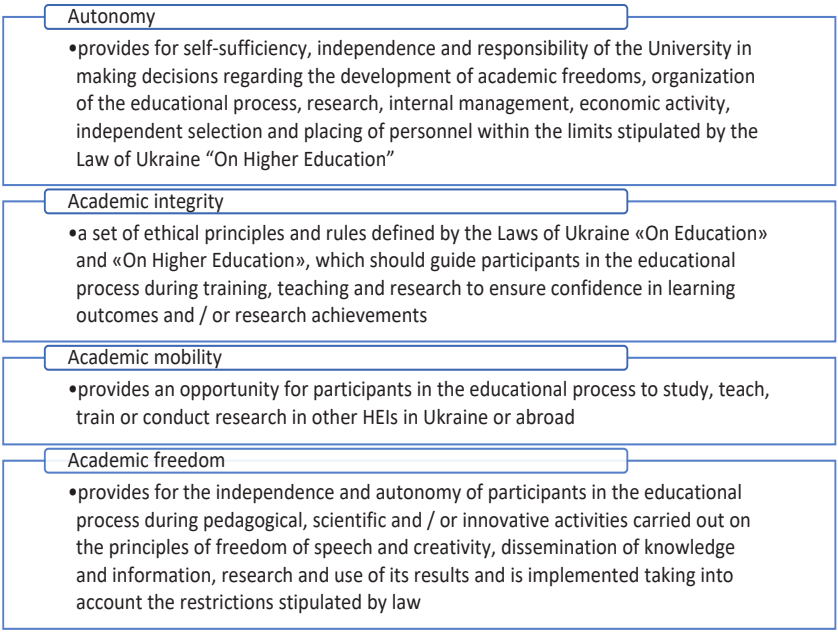

Fig. 9.3. Four main principles of KrNU governance strategy

Source: KrNU, 2019, p. 13.

Especially important for improving the quality of educational services is the ***presence of channels for feedback and complaints***. At the Kremenchuk Mykhailo Ostrohradskyi National University channels for feedback and complaints are available on website in two subsections: "Call "Hotline" and "Surveys". With "Call "Hotline" subsection it is possible to inform the university board about bribery, abuse, and other negative phenomena (KrNU, 2024b). "Surveys" subsection provides feedback on the education issues (KrNU, 2024c). In particular, the "Regulations on the survey of participants in the educational process and consumers of educational services" lists the following tasks among the survey objectives: analyzing the opinion of all participants in the educational process regarding its organization, academic integrity, quality of the content of educational programs at the university, obtaining objective data on internal university social processes and problems; obtaining up-to-date information from employers on the quality of future specialists' training in relevant educational programs in order to modernize the content of educational programs and organization of the educational process (KrNU, 2024d).

The "Surveys" subsection contains the following ten items:

- *Student questionnaire on the educational program quality*.
- *Questionnaire for a higher education applicant*.
- *Questionnaire on academic integrity for students*.
- *Questionnaire on academic integrity for a lecturer*.
- *Questionnaire for a graduate*.
- *Questionnaire for employers*.
- *Questionnaire "Quality of the course (discipline)"*.
- *Questionnaire "Lecturer through the eyes of a student"*.
- *Questionnaire on corruption prevention for students*.
- *Questionnaire on Corruption Prevention for Employees*.

Developing a set of questionnaires for current diagnostics of the educational quality assurance system and the quality of higher education (internal quality assurance system) is carried out by the Center of quality monitoring and academic integrity, a governance structural subdivision of Kremenchuk Mykhailo Ostrohradskyi National University that is providing feedback on the educational process quality. All the survey questionnaires are developed by Center of quality monitoring and academic integrity.

As can see, 2 of 10 questionnaires are related to such an important aspect of university governance as corruption prevention. The official webpage of KrNU Commissioner on Corruption Prevention and Detection contains information on internal and external channels for reporting possible facts of corruption or corruption-related offenses, as well as a link to the National Agency on Corruption Prevention chatbot for applicants, and information on state and HEIs anti-corruption activities during the admission campaign (KrNU, 2024e). This page also contains an educational video for admission applicants "Admission without Bribes" and a presentation "Educational Assistants for the Admission Campaign 2024", which describes the prevention of corruption risks during the admission process (KrNU, 2024f).

Another important ESG indicator that should provide sustainable development of universities is ***stakeholder involvement in decision processes***. An example of this is the supervisory board at Kremenchuk Mykhailo Ostrohradskyi National University, which is an authority that supervises the property university governance, compliance with the purpose of its creation, and contributes to solving perspective development tasks. The supervisory board includes stakeholders who are representatives of governance structures in leading scientific and educational institutions, government bodies, and leading enterprises (KrNU, 2024g).

Stakeholders' involvement occurs directly through their participation in the discussion of educational programs as a member of working group. After discussion, a decision is made to approve the educational program by voting, and vote of each stakeholder is recorded in working group report.

As an example, following stakeholders are involved in the discussion and approval of educational programs of Kremenchuk Mykhailo Ostrohradskyi National University:

- *Director of Kremenchuk City Council Education Department*.
- *Director of Kremenchuk Hymnasium*.
- *Director of Kremenchuk Educational and Methodological Center of Psychological Service*.
- *Director of Kremenchuk higher vocational school*.
- *Director of Kremenchuk City TV and Radio Company*.
- *Head of Kremenchuk TV and Radio Company Department*.

- *Head of the Youth Policy Implementation Department of Kremenchuk City Council Youth and Sports Administration* (KrNU, 2024h; KrNU, 2024i).

The university governance structures that are responsible for carrying out ***research in the field of sustainable development*** are relevant in implementing ESG principles and strategies. In particular, KrNU has established and operates the Center of quality monitoring and academic integrity, which is engaged in researching the sustainable development of HEIs in Poltava region of Ukraine. Zagirniak (2017) notes in his study, the method for determination of the level of absolute and relative educational pragmatism in the activity of higher educational institutes in Poltava region has been created. Using this method by stakeholders reveals them the level of establishment educational potential realization.

East European and Ukrainian Universities Impact Rankings: a Comparative Analysis in the Context of Implementing ESG Principles Aimed at Achieving SDGs

For a comparative analysis of HEIs' sustainable development in the context of implementing multiple SDGs in the European higher education system, the Times Higher Education (THE) University Performance Rankings are used. Times Higher Education annually presents the University Impact Rankings, identifying and celebrating universities that excel across multiple United Nations SDGs. There are 17 of them, and the ranking takes into account achievements of universities in fulfilling each of the declared goals, and also forms a general list of University Impact Rankings. The purpose of the ranking is to evaluate the results of world's best universities in achieving the UN SDGs.

As an example, for 2024, top three HEIs in East Europe (in Ukraine, Czech Republic, Hungary and Poland) were following: Charles University (Czech Republic) with a rating of 201–300, Sumy State University (Ukraine) with a rating of 201–300, and University of Gdańsk (Poland) with a rating of 301–400 (THE, 2024a).

Figure 9.4 below show detailed indicators of sustainable development of each studied HEI for 2024.

Among HEIs of East Europe, Kremenchuk Mykhailo Ostrohradskyi National University (KrNU) has significantly improved its sustainability

performance in recent years and has been included in THE University Impact Rankings for 2024, where it ranks 48th with a rating of 1001–1500 (Fig. 9.5).

Rank	Name	Best scores by rank	Overall
201–300	Charles University (the Czech Republic)	16 80.1 · 3 81.3 · 8 69.3 – 73.8 · 17 52.9 – 59.7	79,3–83,9
201–300	Sumy State University (Ukraine)	16 72.7 – 79.6 · 8 69.3 – 73.8 · 12 73.1 – 81.4 · 17 84.8 – 90.0	79,3–83,9
301–400	University of Debrecen (Hungary)	8 74.6 · 3 71.9 – 75.8 · 4 69.3 – 74.7 · 17 80.1 – 84.7	75,8–79,2
301–400	University of Gdansk (Poland)	5 75.6 · 16 61.9 – 66.8 · 8 61.2 – 65.1 · 17 84.8 – 90.0	75,8–79,2
301–400	University of Szeged (Hungary)	16 83.8 · 4 69.3 – 74.7 · 5 59.2 – 63.0 · 17 59.9 – 67.4	75,8–79,2

Fig. 9.4. Top 5 HEIs in the Eastern European region

Source: THE (2024a). THE Impact Rankings 2024

Rank	Name	Best scores by rank	Overall
1001–1500	Ostrogradsky National University of Kremenchuk (Ukraine)	7 46.4 – 55.2 · 5 35.3 – 42.0 · 10 37.0 – 47.1 · 17 36.9 – 52.8	45,0–58,7
1001–1500	Petro Mohyla Black Sea National University (Ukraine)	16 51.3 – 61.8 · 3 43.1 – 51.1 · 4 25.7 – 44.1 · 17 52.9 – 59.7	45,0–58,7
1001–1500	Poznan University of Technology (Poland)	16 51.3 – 61.8 · 3 43.1 – 51.1 · 4 25.7 – 44.1 · 17 52.9 – 59.7	53,9–59,6

Fig. 9.5. KrNU ranked 48 place in top 50 Eastern European universities for 2024

Source: THE (2024a). THE Impact Rankings 2024

Compared to previous year, 2023, the university has significantly improved its performance (Figure 9.6): in 2024 its total score was 45.2 (2023 – 41.9 and it ranks 57th). For the first time, KrNU participated in THE 2021 ranking and was ranked by only 5 SDGs. In 2022, the university was evaluated by 7 SDGs, and in 2023 – by 9 SDGs. And in 2024 – by 10 SDGs (THE, 2023; THE, 2024a).

Rank	Name	Best scores by rank	Overall
1000+	Ostrogradsky National University of Kremenchuk (Ukraine)	7: 51.9 – 56.1; 5: 34.4 – 43.6; 16: 29.1 – 45.0; 17: 1.5– 45.2	7,9–53,8
801–1000	Poznan University of Technology (Poland)	7: 70.4; 9: 33.9 – 50.8; 3: 32.1 – 44.6; 17: 61.1 – 70.5	45,0–58,7

Fig. 9.6. KrNU ranked 57 place in top 100 Eastern European universities for 2023

Source: THE (2023)

Sumy State University (Ukraine), ranked first among Ukrainian universities for 3 years in a row, has increased its global position, moving into the top 201-300 best universities in the world. Sumy State University's high position in THE Impact Rankings once again confirms the university's leadership not only in the national but also in global educational and scientific environment.

Charles University (Czech Republic), one of the oldest universities in Europe, is considered as the best in the Czech Republic by THE World University Rankings and University Impact Rankings. Sustainable development has a place in all faculties and units of Charles University (CU) and is intertwined with all its core roles and activities. According to Charles University (2023), sustainable development strategy objective goal is “strengthening the position of sustainable development in education, science and research by integrating sustainable development and its sub-topics into CU’s lifelong learning courses on sustainable development/ ESG/CSR topics” (Charles University, 2023).

The University of Gdańsk (UG) has significantly increased its position in THE Impact Rankings (from 401–600 to 301–400) for the last year. Both the UG governance structures and university teachers have an important role to play in sharing knowledge and engaging in ESG principles. The HEI actions aim at raising awareness of, and communicating knowledge about, issues related to good university governance and sustainable development.

To study sustainable development dynamics, each university's profile also contains the dynamics of its rankings in recent years (Table 9.2).

Table 9.2. THE Impact Ranking Positions of Charles University, Sumy State University, University of Gdansk in 2021–2024

Universities	2021	2022	2023	2024
Charles University (the Czech Republic)	401–600th	201–300th	201–300th	201–300th
Sumy State University (Ukraine)	601–800th	401–600th	301–400th	201–300th
University of Gdansk (Poland)	801–1000th	601–800th	401–600th	301–400th

Source: THE (2024b), THE (2024c), THE (2024d)

As can be seen in dynamics, top three universities and other participants of ***the University Impact Rankings*** have demonstrated stable or increasing ranking indicators in recent years, which show good governance as a key ESG principle and sustainable development generally.

THE University Impact Rankings results show that good university governance with the use of ESG principles aimed at achieving SDGs ensures a resilient and sustainable future for European higher education, even in the conditions of martial law (Ukrainian HEIs).

Conclusions

Governance as a main pillar of ESG principles is one of the framework concepts with SDGs and Corporate Social Responsibility that forming resilient and sustainable future of European HEIs. The study's outcome shows that all ESG principles are included in Ukrainian HEIs governance. At KrNU, in particular, there are such good governance actions for actively

implementing ESG principles: transparency in decision-making, engaging key stakeholders, and establishing channels for feedback.

The fundamental challenge that European HEIs are currently experiencing is to change the traditional approach to organization and implementation of the educational process by integrating sustainable development values and good governance based on ESG principles. This challenge requires that HEIs incorporate ESG principles and SDGs into their development strategy, as well as form ESG-focused competencies in governance and sustainable development. To these fundamental goals, which are relevant to all European education, in Ukraine are added those caused by new external factors as challenges, potential opportunities and threats. Ukrainian HEIs should respond more flexibly to these challenges caused by conditions of war without refusing to implement ESG principles in governance of the educational process.

Thus, if Ukrainian HEIs (including the KrNU) aim to become complete and competitive participants in the European educational environment, it is essential that university governance structures to shift its accent to the role in achieving sustainable development and implementing ESG principles, strategies and goals.

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Chapter 10.
Implementation of the Governance principle on the example of Alfred Nobel University

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Introduction

Dnipro is the largest city bordering the occupied Ukrainian territories. It has become a large humanitarian and logistics hub that determines all spheres of life, particularly education. Daily shelling threats and sirens make offline classes impossible, shelters are a necessity, and many participants stay abroad in safety.

Alfred Nobel University (ANU) is a small private university with around 2000 students and 150 staff members. After the full-scale invasion in 2022, ANU lost nearly a third of its students, many of whom had gone abroad and, with time, quit their alma mater. ANU management and personnel needed to take a good command of the situation to keep themselves afloat (ANU, 2024). Let us see in detail what was done related to the "G" component of ESG principles.

The fact that ANU is a private university makes it stand out from the other cases presented here. According to ANU's corporate culture, it is, first and foremost, an educational institution, but notwithstanding that, this is a business, and businesses should make money.

Governance is a universally acknowledged dimension in a company's activity that plays a crucial role in creating a foundation for its long-time sustainable business practices. As Dayal (2023) states, it refers to:

- the internal structure of the company, in particular, a set of its principles, processes, procedures, and practices guiding how the company is governed;

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- the composition of its board and transparency of its actions;
- the framework, structure, and ethics in decision-making that ensure the company acts responsibly and in the best interests of its stakeholders. We are going to analyze all three points mentioned here in more detail.

Huang et al. (2022), when investigating the Governance ESG Factor, include the following items: the university authority in preparing the vision and mission; planning; regulation; performance; dissemination of programs and achievements to stakeholders; study programs' authority to manage curriculum and research; freedom for lecturers to apply lecture methods and materials, as well as carry out research and community service; and the involvement of supporting staff in preparing, implementing, and evaluating university programs related to ESG. Five indicators support Governance Concerns: University Autonomy, Academic Freedom, Professor Authority, Staff Empowerment, and Information Transparency.

There are several principles for the implementation of the governance component.

1. Efficient management implies the **accountability** of the company's actions and its **transparency** in operation. Such policies breed stakeholders' trust in the company's responsibleness and clarity. For instance, in (Mo & Wang, 2023) there is substantial analysis of how clear and fully HEI in China represent governance structure on their web-pages, including gender and ethnic group information of the highest governance body members, annual reports, communication of critical concerns, remuneration policies, and other dimensions. Christie (2024) complements these factors with clarity in corporate governance, corruption and money laundering, adherence to business ethics and elimination of fraud.

2. The practices of proactivity in operational and reputational **risk identification and management** (including those relating to "E" and "S" parts of the ESG system) implemented through the governance of the company help prevent their potential negative impact and, again, ensure sustainability.

3. The body of **the board of directors** is critical for the company for the formulation of its strategic direction, evaluation of risks and potentials, and ensuring achievement of ESG objectives.

4. Efficient governance is impossible without a strong team of leaders and good **management**. These personalities are responsible for providing into life the directives of the board, ensuring they conform with the principles of ESG (including the level of day-to-day operations). According to Krambia-Kapardis et al. (2023), good leaders are open to allocating power, give clear ethical directions, and apply efforts to build sincerity and equality. Huang et al. (2022) investigate the characteristics of an efficient ESG leader and single out their five indicators: the Rector/Leader's Leadership, Vision and Mission, Resource Input, ESG Education, and Culture and Consensus. Let us analyze the case of ANU to see how it implements the principles discussed above.

Restructuring of the University

In the case of ANU, together with the challenges of the Russian Federation's full-scale invasion, there was a change of the Rector in 2022. The new University head completed an audit of the University and assembled a new team of leaders who shared his values. Primarily, this is openness and striving to do open and honest work and make money. The administration is now transferred to the KPI system and included in the income sharing, encouraging them to take responsibility for project results and increasing their productivity and motivation to achieve common goals. The ANU board includes the Rector, Vice-Rector for Quality Assurance, Vice-Rector for Science and International Cooperation, Vice-Rector for Technical Specialities, and Deputy Rector for Commercial Affairs in 2024. Female employees represent 57 % of the administration. All nine of the university's departments are headed by female professors. Out of 17 structural subdivisions present in the University, there are female heads in 15, which makes 88 % (ANU, 2024).

ANU was completely restructured: if formerly there were 28 bodies within the university that were subordinate directly to the Rector, now there was a new efficient business organization structure (Fig. 10.1). In particular, one department was liquidated, three departments changed their names to reflect current demands, three structural subdivisions were reorganized, and one structural subdivision was created. Several departments previously financed by the ANU were given to outsourcing. The ANU Statute was

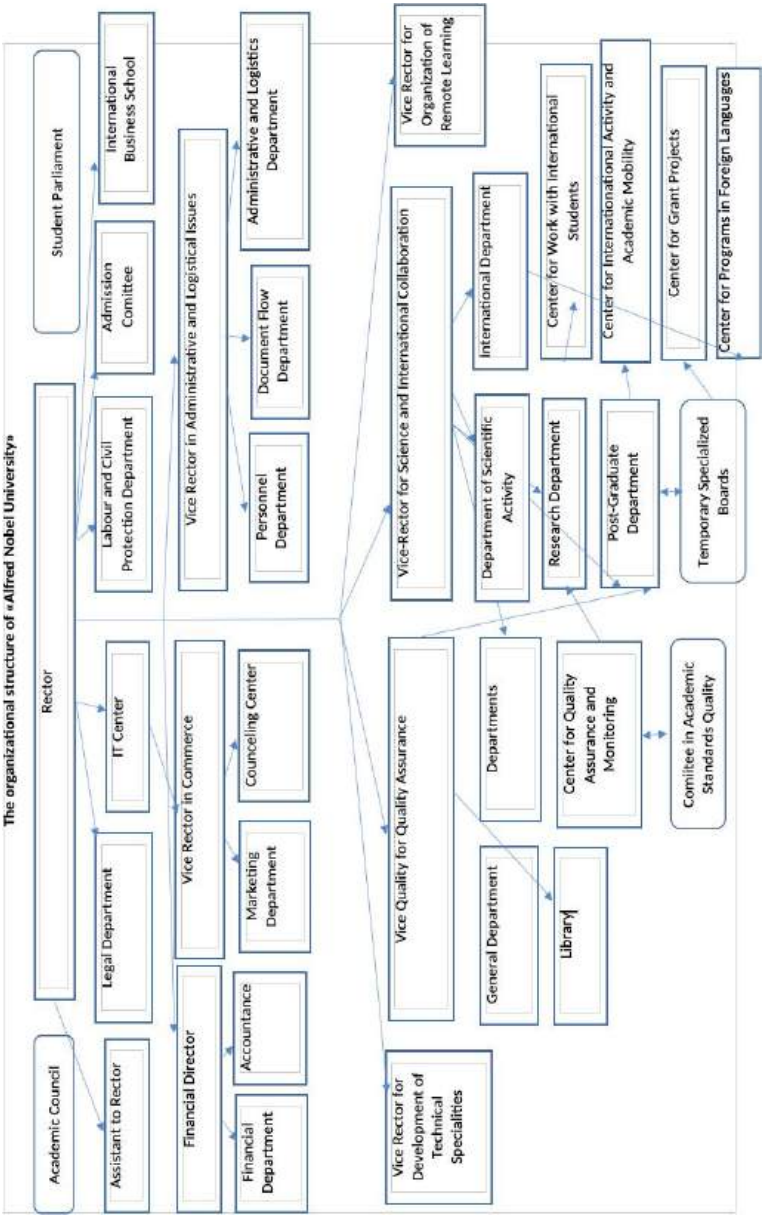

Fig. 10.1. Organizational structure of Alfred Nobel University

altered (Statut vyschoho navchal'noho zakladu “Universytet imeni Al'freda Nobelya”, 2022) and the Collective Treaty amended (Kollektyvnyi dohovir vyschoho navchal'noho zakladu “Universytet imeni Al'freda Nobelya” for 2023–2027, 2022).

From 2022 to 2023, the organizational structure of the University changed dramatically. By now, ANU is structured as an efficient business organization. The managerial structure includes the following bodies.

Rector to whom Legal Department, IT Center, Labour and Civil Protection Department, Admission Committee, International Business School, and Vice Rectors are subordinates.

Vice Rector in Commerce to whom Marketing Department and Councelling Center are subordinate.

Vice Rector in Administrative and Logistical Issues to whom Personnel Department, Document Flow Department, Department of Administrative and Logistical Issues are subordinate.

Financial Director to whom Financial Department and Accountance Department are subordinate.

Vice Rector in Quality Assurance to whom the General Department, Library, Center of Quality Assurance, and Management and Departments are subordinate.

Vice Rector Vice-Rector for Science and International Collaboration to whom Department of Scientific Activity, Research Department, Post-Graduate Department, Department of International Activity and Academic Mobility are subordinate.

Vice-Rector for Development of Technical Specialities.

Vice-Rector for Organization of Remote Learning.

These actions align with the University philosophy (Kholod & Prusak, 2024) presented on the ANU's official webpage: there is no need to manage professionals. It is important to give them an opportunity to work so that they can do their best and develop their potential. Altogether, a successful team is a result of harmonious interaction, trust, and common efforts. Going back to the basic principles for the implementation of the good governance, the following of them are given below.

A well-structured and coherent framework based on the company’s mission and values must be created for decision-making.

"As the keepers of knowledge, it is incumbent for higher education leaders to determine if decision-making processes reflect the institution's community" (Esteves-Miranda et al., 2021, p. 77). It is to promote not only short-term profits and benefits but also ensure lasting influences on the environment, society, and stakeholders. With it, better decisions and more robust strategies are more likely to appear.

According to ESG, companies must **engage with stakeholders** and consider their interests. This implies understanding their needs and expectations, which will make it possible to build stronger, mutually profitable relations. Let us see the way in functions in the case of ANU.

Collaboration with ANU Stakeholders

The full-scale invasion was the starting point of the bigger activity of the Student Parliament of Alfred Nobel University, serving as an example of efficient collaboration with one of the university's stakeholders. In particular, the need to be active and influence the situation brought by the war consequences made active Student Parliament members come forward with many initiatives as for the changes in the life on campus. Namely, these are activities with collecting funds for AFU ammunition and supplies represented on ANU official Instagram page, organizing and active participation in classes of tactic medicine (Uchast' u treningu z taktychnoii medytsyny predstavnykiv parlamentu ta rektoratu vud Sviatoslava Tsvetkova. February 3, 2024), participation in patriotic rallies (Fig. 10.2)

Crucial changes in communication with students as ANU stakeholders are brought about by the fact that the University functions as a business structure. The Dnipro region and Ukraine highly value the contributions of ANU, particularly its high-quality graduates, who are in great demand. The University staff proudly regards these graduates as trusted partners. It eases communication and allows us to adapt curricula and contents of the academic process faster. The University implemented paid internships from the first year of studies, and new majors appeared, such as electronic commerce and engineering of unmanned aerial vehicles. Modernization of outdated majors is also in process.

To implement the interaction process with the ANU stakeholders, a series of strategic sessions were carried out, in which key problems

Fig. 10.2. Representatives of the Student Parliament and the ANU administration participate in the class of tactic medicine. February 3, 2024

Source: ANU (2024)

were revealed, and variants of solutions were proposed. The ANU personnel participated – namely, 40 representatives of all strategic divisions of ANU (out of nearly 200). For example, the situation with a massive drop in students was reformulated and re-evaluated. Except for the stress of short-term educational programs for ANU students and broader audiences, it was decided to attract more actively non-Ukrainian beneficiaries. It was decided that ANU could be profitable not only through educational services but also through counseling and research. Another stress that was made is on ANU staff as their brands so that with

themselves and their active professional and research activity they could be the university advertisement. Specific steps were brainstorms on how to move to achieve this priority (for instance, active social media self-representation). Let us return to defining the key principles of the good governance implementation.

New Ethics and Integrity

ESG implies **ethical behaviors and integrity** in all company life domains. In particular, this may mean fair treatment towards employees, respecting their rights, remuneration, and elimination of corruption (Mo & Wang, 2023). Altogether, these measures ensure a positive reputation with the stakeholders, eventually bringing their trust and loyalty. The latter two points are well-described in the monitoring process of communication with stakeholders in Christie (2024). The author gives several questions addressed to stakeholders to get their feedback as for their implementation, for instance: How could you rate transparency of information and decision-making processes on campus? To what extent do you feel informed about campus policies and decisions? How satisfied are you with the level of disclosure regarding campus policies and procedures? In your opinion, how well does the university uphold ethical standards in its operations and decision-making? What areas do you believe the campus could improve regarding transparency and disclosure?

Sustainable governance promotes **long-term perspectives** beyond immediate profits. Instead, efficient leaders may focus on creating enduring value for all the stakeholders.

Education Process

With the full-scale invasion, ANU widened the British and French long-term partnerships and received the status of the education provider within the Deep Tech Initiative, a part of the European Institute of Innovations and Technologies program. In response to the war and within the partnership and support of the French institutions (“France-Ukraine Exchange” Federation (Guéret, France), the Regional Directorate of Central and Eastern Europe of the World Agency of Francophone Universities, André Lalande Rehabilitation and functional readaptation center

(Noth, France), the Céleste-Obernai Hospital Center (Céleste, France), and Alliance Francaise Dnipro), at the beginning of 2024, ANU launched and coordinated an international project for preparation of Ukrainian psychologists and rehabilitologists for work with people with amputated limbs (Fig. 10.3). For two years ANU has been a member of the Francophone University Agency and is determined at further development of this partnership and the project mentioned above in particular. New professional internships are planned already as well as open lectures and webinars for exchange of experience.

Fig. 10.3. Participants of the international project "Réabilitologues – 2024" in Andre Lalande Rehabilitation and Functional Adaptation Center (Noth, France), January, 2024

Source: ANU (2024)

Under the conditions of war and the unstable socio-economic situation in Ukraine, ANU continues to accredit its academic programs through national accreditation bodies. In April 2023, the BA program "Computer Sciences" and in December 2023, the MA program "Computer Sciences" were accredited. The University is currently in the process of preparation for accreditation by the Association to Advance Collegiate Schools of Business, AACSB. Most experts consider it the highest achievement in the direction of quality assurance of the educational process, research activity, and student life.

Altogether, the actions mentioned above served well in the successful implementation of ESG ideology for a particular university, ANU, in our case. Dayal (2023) also defines how strong governance contributes to the success of ESG.

1. It ensures that the company's **board and management are aligned with ESG objectives**. If the latter are deeply woven into the company's mission, they become its overall well-conceived strategy and drive the company towards ESG success, and this is exactly what we see in the provided examples.

2. Proactive environmental, social, and governance **risk identification and management** help companies not get involved in potential controversies and keep their reputation. In the ANU case, strategic sessions, regular quality evaluation procedures, and staff meetings help identify and prevent current and potential risks.

3. Effective governance practices put efforts into **dialogue with stakeholders** that enable them to understand better the concerns and expectations of their employees and communities. It leads to the creation of value for all the parties involved. In return, companies who stay in dialogue with their stakeholders are more likely to adapt to a rapidly changing environment. In ANU, as we have seen, continuous efforts are applied to keep dialogues with students, staff, and potential employers.

4. Effective governance implies thorough ESG **data collection and consistent performance reporting**. This allows progress to be tracked and provides management with clear data for communication with stakeholders.

Conclusions

In the case of Alfred Nobel University, we have fully seen the implementation of the "G" (governmental) component following the ESG ideology. Reacting to the full-scale invasion of the Russian Federation of our country, coping with all the subsequent challenges not only to keep afloat but to stay a profitable business organization, it optimized its administrative infrastructure, cleared out its set of principles, put efforts into keeping its actions transparent, and the governance system and ethical considerations in decision-making. The results of these actions contributed to the stable position of the university on the market in the time of the ongoing war, good positions in Ukraine's common university ranking, and leading positions in private university ranking, in particular.

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Chapter 11.
Governance aspect of ESG in Lutsk National Technical University during the war

Olena Kuzmak[1] and Oleh Kuzmak[2]

Introduction

University resilience and effective wartime management are critical for several reasons. In the conditions of war, higher education institutions face numerous challenges that require rapid adaptation, mobilization of resources, and coordinated management work. War threatens continuous learning because students and teachers may be forced to leave their homes, change their residences, or join the country's defense. A sustainable university with effective management can provide distance learning, use online platforms, and support access to educational resources for all students regardless of their location. Military actions cause stress, anxiety, and other psychological problems in students and university employees. Effective management includes providing psychological support, organizing consultations, and ensuring the safety of all participants in the educational process. The stability of the university allows it to continue scientific research and support laboratories and scientific projects that are important for the recovery and development of the country.

Governance During War: Challenges and Adaptation

The stability of the university and its effective management during the war are necessary to preserve the continuous educational process, support the mental and physical health of the community, preserve scientific potential, fulfill social responsibility, and ensure financial stability. They facilitate adaptation to new conditions, help the university overcome

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challenges, and contribute to the country's recovery and development. And ESG is the university's sustainability roadmap.

Lundy et al. (2022) note that a well-designed plan to promote environmental sustainability is one element of a broader ESG strategy that can make a higher education institution attractive to students, faculty, and staff who want to be associated with a purposeful organization. Kmetz (2024) writes that ESG in higher education is critical for institutions to effectively address environmental and social issues, increase their attractiveness, and ultimately foster a broader culture of sustainability in the education sector. Prazian & Prykhodko (2023) insist that high-quality education is a priority because it will help society cope with the new level of challenges and even existential climate threats.

The mission of the Lutsk National Technical University (LNTU): "the formation of a highly educated and nationally conscious generation of Ukrainian citizens by providing conditions for the self-realization of students and employees in the process of their joint educational, scientific, and innovative activities, quality training of highly qualified specialists – leaders in the field of transport, production and technology, architecture, construction and design, agricultural sciences and ecology, educational and food technologies, mechanical and electrical engineering, digital, computer and information technologies, automation and electronics, instrumentation and telecommunications, management and administration, mathematics and statistics, social welfare, psychology and pedagogy, humanities and social-behavioral sciences, journalism, civil security, service, international relations and law" (Development strategy LNTU, 2021). The strategic goal of LNTU: is the creation of a powerful, highly competitive, free, and comfortable educational and scientific space, an innovative "growth pole" of Volyn, which will implement the "education-science-business-government" formula.

The war was a great shock and challenge for the university management and students. Immediately after the declaration of martial law, studies at the university were suspended and students were sent on forced vacations for their safety, but teachers and the university administration did not leave the walls of the university and began global work to help the army and refugees who came en masse to Lutsk.

The first days were extremely difficult emotionally because the realization that a full-scale war was taking place was difficult to accept. The plans for 2022 at LNTU were not at all as the terrible reality turned out to be. In 2021, the university gained quite a speed of development, and the stoppage of all development projects was perceived very painfully. Therefore, they did not stop but reoriented and mobilized to help the Armed Forces from the first day of the full-scale invasion.

Two weeks after the invasion of the Russian Federation's troops, the administration decided to resume distance learning, after the adoption of the law "On the organization of labor relations under martial law". Based on this, the LNTU felt the need to make changes to the internal rules of the LNTU, in particular in terms of reducing the length of working hours for all categories of employees by 6 hours a week. Under the roof of the Lutsk National Technical University, a powerful synergy of scientists, businessmen, and government officials emerged. LNTU became a center that united the strength of teamwork, where everyone occupied his niche and faithfully performed tasks that were not typical for him until now, professors, along with teaching, got to the machine tools and began to make items needed for the army, female teachers began to sew ammunition, shoes for the military, weave nets and other necessary things. The staff of LNTU will continuously contribute to the needs of the Armed Forces, which made it possible to purchase off-road vehicles, thermal imagers, sights, quadcopters, generators, batteries, and other necessary items. In the conditions of military aggression in Lutsk, the National Technical University, in addition to educational, research, international, project, and educational work, also took an active position in helping the Armed Forces.

LNTU became a center of volunteerism. What did they do, what areas of assistance did they provide, and with whom did they cooperate? We tackled everything that could bring victory closer: logistics; a collection of food, medicine, and necessary things for fighters and injured citizens; tailoring of ammunition and production of high-quality plates for body armor; provision of food for displaced persons and military personnel; production of camouflage nets; repair of drones, chargers and cars for the Armed Forces; fundraising and many charity projects. From the first days, the scientists of our HEI changed their business suits to uniforms

and began to work with machines. Through joint efforts, it was possible to produce about six thousand armor-piercing plates for high-quality body armor, which were immediately handed over to the soldiers at the front. Workshops of LNTU worked on producing anti-tank hedgehogs, heaters, and repairing cars for the Armed Forces. In addition, LNTU manufactured portable charging stations and repaired drones and quadcopters. A significant amount of special sapper equipment – boarding hooks – has been developed and manufactured with partners. However, despite the difficult times and uncertainty for our country, the university, believing in the victory of Ukraine, continued to work to the maximum. In one of the buildings, a volunteer center of the National Technical University was created, where they received, packed, and sent goods for those who needed them almost 24 hours a day. Our scientific and pedagogical workers and students abroad in the spring of 2022 provided much help. They transferred thousands of tons of cargo with clothes, food, and hygiene products to the National Technical University through European volunteer centers (Table 11.1).

Table 11.1. LNTU produces products for the Ukrainian army

Products	Photo
Military helmets	
Military clothing	

Products	Photo
Anti-tank hedgehogs	
Molotov cocktails	
Heating tools (burzuyki)	
Buggies made by students	

Among all of these, LNTU has expressed maximum support to colleagues from the East of Ukraine. Donetsk National Technical University scientists, who had to leave their homeland for the second time, were protected.

It was decided to consolidate and move one of the faculties of our university to another building and to provide an educational building for Donetsk University so that they could carry out their activities. This is how the slogans were born, which became the main motivators for the entire information campaign this year: “With faith in ZSU, choose LNTU” and “Invincible because they are educated.” Currently, LNTU works on a mixed form of education, and the availability of shelters and the effective use of information and computer technologies make it possible to organize a high-quality and safe educational process. Educators have their own front. The experience of organizing wartime training, alongside the heroic work of the Armed Forces, testifies to the indomitability of our nation.

During 2023, the following activities were carried out:

- Reconstruction of LNTU's educational and laboratory building into a dormitory for internally displaced persons (with the support of the Lutsk City Council under the NEFCO program; the cost of the project is about 1.6 million euros).
- Capital repair (thermo-modernization) of the main building.
- Project “Reconstruction of the educational and laboratory with adaptation into the digital development platform “DIGITAL INNOVATION SPACE (DISpace)” was started, and as part of the project, thermal modernization was completed – the project “Reconstruction of the educational and laboratory building B-Z with adaptation to the creative hub “Art Tech” was started.
- Current repairs: classrooms, sanitary rooms, and rooms for living in a dormitory.
- Reconstruction of shelters.
- Veteran hub “LNTU Veteran Hub” was created. The organization of the Center for Veteran Development “LNTU Veteran Hub” based on LNTU will allow the establishing coordination, methodical support and organization of programs aimed at social adaptation and promotion of employment of servicemen, veterans of the war, and members of their families. Also, short-term courses of scientific and professional retraining and measures for social and psychological adaptation for the specified categories of persons will be organized.

Impact of ESG on LNTU Resilience

Among the components of the Governance ESG aspect at LNTU, the presence of an effective academic council and supervisory board plays an important role. Thus, Lutsk National Technical University has an effective supervisory board, the purpose of which is to contribute to solving promising tasks of the development of LNTU, attracting financial resources to ensure the university's activities in the main directions of development and exercising control over their use, effective interaction of the university with state bodies and local self-government bodies, the scientific community, socio-political organizations and subjects of economic activity in the interest of development and improvement of the quality of educational activity and competitiveness of higher education institutions, implementation of public control over university activities, etc. In 2023, it was updated. The Academic Council of the university did not stop working, initially in a remote format, and from September 2022 in an in-person format, which adopted the necessary regulations, resolutions, and development strategies for the university's activities and ensuring the quality of the educational process during martial law.

To ensure the implementation of ESG even under martial law, considering the dynamic development of science and education, educational components are systematically updated at LNTU, accompanied by innovative methods for teaching disciplines. In particular, the use of business cases, business games, situational tasks, brainstorming, brainstorming, lecture discussions, and team games to increase the level of soft skills (personal characteristics that allow a person to interact in a team when solving any work issues successfully, students of higher education. Motivational retreats and business forums are organized for the winners, to which successful individuals and well-known graduates of the National Technical University are invited, who, by their example, motivate young people for continuous self-development and improvement. Numerous trainings, including by certified trainers, contribute to the deepening of theoretical knowledge and the acquisition of practical skills of a modern specialist. Accreditation was conducted in an online format. In general, the dynamics of the contingent of LNTU students compared to last year increased by 2 983 people due to an increase in the number

of students with a master's degree in higher education by 717 people and an increase of 2 169 people with a bachelor's degree. In addition, to ensure the quality of the educational process in martial law conditions, monitoring groups from faculties were formed at the University, whose members monitor the quality of educational classes, module control, etc. The most important issues of the organization of the educational process were discussed at the Academic Council of the University, the rectorate, and the academic councils of the faculties, and were discussed at industrial meetings.

Ukraine is in dire conditions of the Russian Federation's military aggression, which also led to the forced displacement or departure of people abroad, and managerial decisions in the field of personnel management, despite their adoption in conditions of uncertainty and risks, should be oriented not only to the preservation of existing achievements and results activities but also to preserve professional personnel and intellectual potential. The formation, preservation, and development of personnel potential are determined by an effective personnel strategy, which is a certain model, general line, and vector of personnel potential management. To ensure the quality of higher education and improve the organizational and methodological support of the educational process at the National Technical University. In 2023, great attention was paid to ensuring the successful functioning and development of the university in matters of recruitment, training, and strengthening of the university's personnel scientific and pedagogical potential – the main condition for its effective activity.

As a result of the implementation of a set of measures, qualitative changes occurred in individual components. The number of scientific and pedagogical workers with scientific degrees and academic titles increased, the share of people with scientific degrees and scientific titles in the scientific and pedagogical staff exceeded 90 %, and for doctors of science, and professors it was more than 13.22 %. At the Lutsk National Technical University in 2023, work was constantly being carried out to create and improve the regulatory framework, strengthening the university's personnel potential. To carry out self-assessment of the competencies of teachers, optimize the improvement of their qualification level, and guide

professional development in 2023, the Methodology of self-assessment of general and professional competencies of research and teaching staff of Lutsk National Technical University was developed and the content of own pedagogical activities and/or job duties was approved. In 2023, regardless of the state of war, scientific and pedagogical workers' professional activity and creativity increased the university's intellectual capital. Therefore, in 2023, LNTU acquired 44 security documents and submitted 41 applications for obtaining security documents in cooperation with the State Department of Intellectual Property of Ukraine.

Development of the International Potential LNTU During the War

Despite the difficult political situation and military aggression, during 2023, the development of international potential continued in areas such as grant and project activities, preparation and submission of packages of project documents to tenders, and development of partnership relations. In 2023, the university continued the implementation of three ERASMUS+KA2 projects on the development of the higher education potential of the program, one ERASMUS+KA2 Youth Partnership project, one Academic collaboration in the Baltic Sea region project, one project financed by the European Union body, the European Institute of innovations and technologies: development of innovative potential for higher education, and received additional financing for two new projects with the participation of LNTU. In April 2023, LNTU joined the partners in the implementation of the project “Cybersecurity of critical infrastructure of Ukraine”, which is financed within the framework of the international cooperation program USAID in Ukraine – Economic development (Program to support the development of a competitive Ukrainian economy).

LNTU in the ratings (Table 11.2):

- TOP 20 Ukrainian higher education institutions (18th place among Ukrainian higher education institutions included in the rating) and 103rd position among Eastern European higher education institutions.
- Webometrics Ranking of World Universities – 54th place out of 300 higher education institutions of Ukraine.
- uniRank University Ranking – 58th place among 193 higher education institutions of Ukraine.

- SciVerse Scopus – 103rd place among 204 higher education institutions of Ukraine.
- EduRank – 55th place among 169 higher education institutions of Ukraine.
- EduRank – 55th place among 169 higher education institutions of Ukraine.
- Ukrainian National H-index Ranking – 139th place among 435 higher education institutions of Ukraine.
- Consolidated ranking of universities of Ukraine – 53rd place among 239 higher education institutions of Ukraine.

Table 11.2. Place of LNTU in international rankings

Rating	The position of the university in the rating	
	2022	2023
QS World University Rankings University rankings for the Global Study of Education and Science.	The university entered the top 15 higher education institutions of Ukraine and the top 300 higher education institutions of Eastern Europe and Central Asia.	The university ranks 18th among higher education institutions of Ukraine and 103rd among higher education institutions of Eastern Europe.
Webometrics Ranking of World Universities Ranking of world universities by the level of their presence in the network	60th place out of 312 higher education institutions of Ukraine	54th place out of 300 higher education institutions of Ukraine
uniRank University Ranking Ranking of universities by popularity on the Internet	76th place out of 184 higher education institutions of Ukraine	58th place out of 193 higher education institutions of Ukraine
Universities on Social Media Ranking of universities by popularity in social networks	Facebook: 83rd place out of 146 higher education institutions of Ukraine Instagram: 74th place out of 113 higher education institutions of Ukraine YouTube: 116th place out of 132 higher education institutions of Ukraine	Facebook: 67th place out of 165 higher education institutions of Ukraine Instagram: 47th place out of 97 ZVO of Ukraine YouTube: 88th place out of 165 higher education institutions of Ukraine

Rating	The position of the university in the rating	
	2022	2023
U-Multirank The ranking of universities is aimed at interested students and stakeholders.	44th place out of 93 higher education institutions of Ukraine	–
Scopus Ranking of universities to track the citation of articles published in scientific publications	99th place out of 195 higher education institutions of Ukraine	103rd place out of 204 higher education institutions of Ukraine
EduRank An independent international ranking based on the number of articles cited and the number of publications	–	55th place out of 169 higher education institutions of Ukraine
Ukrainian National H-index Ranking The rating is aimed at evaluating scientific productivity	–	139th place out of 435 higher education institutions of Ukraine

Source: Report of the rector of LNTU (2023)

Improving the Quality of Educational Activities LNTU to Ensure ESG Principles

In 2024, to improve the quality of educational activities and comply with ESG principles, the Strategy for the Development of the Internal System of Quality Assurance of Higher Education of Lutsk National Technical University for 2024–2029 was developed, discussed, and supported by the Academic Council of the University. The successful implementation of the strategy depends on the effectiveness of the internal system procedures to ensure the quality of higher education at LNTU, which will improve the quality of education and competitiveness, attract additional resources, and increase the accessibility of education. The University has a department for quality assurance of the educational process, licensing, and accreditation, which

ensures the implementation of policies and procedures of the internal system of quality assurance of higher education at the University, monitoring and evaluation of the quality of educational programs, prevention and detection of academic plagiarism in scientific works of LNTU employees and students of higher education, including the creation and operation of an effective system for the prevention and detection of academic plagiarism, generalization and dissemination of positive international and domestic experience in educational innovation for internal quality assurance, conducting surveys of all stakeholders of the educational process.

In recent years, LNTU has implemented several significant measures to enhance the quality assurance system for higher education:

- Establishment of Department for ensuring the quality of the educational process, licensing, and accreditation.
- Development and implementation of internal regulations of quality assurance system.
- Introduction of a monitoring system of educational programs.
- Implementation of the Platform for conducting surveys.
- Creation of NPP rating of the departments.
- Introduction of a system and mechanisms for ensuring compliance with academic integrity principles, including plagiarism checks.
- Creation of the Quality of Education page on the University's website.
- Ensuring the publicity and transparency of information through the publication of educational programs, the results of surveys of stakeholders of the educational process, checks of works for plagiarism, etc.

At the same time, developing LNTU's quality assurance requires constant changes. Priority directions for the development of the internal system of ensuring the quality of higher education for LNTU are defined in the strategy:

- Ensuring the quality of education.
- Enhancing the quality of teaching.
- Creating an effective digital educational environment.
- Strengthening quality management.
- Promoting excellence in research.
- Ongoing improvement of the quality assurance system.

Improving the internal system of quality assurance of higher education is intended to increase the level of educational programs and the effectiveness of teaching and ensure the compliance of educational processes with international standards and the needs of the labor market. An important component is increasing student satisfaction by creating favorable conditions for learning, taking into account feedback, and improving the quality of the educational process.

The implementation of the Strategy for the improvement of the internal quality assurance system will increase the efficiency of the Lutsk National Technical University, create a more comfortable environment for the interaction of participants in the educational process, ensure a high level of training of graduates and advanced training of employees, strengthen international cooperation, ensure the compliance of educational programs with modern requirements of the labor market, implement innovative teaching and management methods, increase student and faculty satisfaction, and strengthen the university's reputation both nationally and internationally. The strategy for developing the internal quality assurance system of higher education of the Lutsk National Technical University is a fundamental step towards achieving high standards of educational activity, promoting the development of scientific research, and increasing the competitiveness of graduates in the labor market. Implementing this strategy requires the active participation of all university stakeholders and continuous improvement based on feedback and analysis of results.

Conclusions

Effective university management is also a key aspect, which includes implementing transparent mechanisms for managing the quality of education, raising the professional level of administrative staff, and using modern monitoring tools. Integrating research activities into the educational process, involving students in research activities, and supporting innovative projects will improve the quality of education. An important aspect is the continuous professional development of teachers through the organization of training, academic mobility, and motivational programs.

Active interaction with employers and other stakeholders will allow for considering the labor market's needs in educational programs and creating partnerships with businesses and public organizations. Ensuring the transparency and openness of the educational process through regular disclosure of information, involvement of all interested parties in decision-making, and conducting independent audits will contribute to increasing the quality of higher education in Ukrainian universities. This, in turn, will improve their reputation, attractiveness to students and scientists, and will also increase the chances of graduates for successful employment and career development.

Lutsk National Technical University (LNTU) has demonstrated remarkable resilience during the ongoing war in Ukraine. Despite the challenging circumstances caused by the Russian Federation's military aggression, LNTU has maintained its commitment to education, infrastructure development, and social responsibility. The university has preserved its educational and research activities and adapted to new realities by implementing innovative teaching methods, upgrading facilities, and supporting displaced individuals and veterans. Its continuous operation of the Academic Council and Supervisory Board ensured strategic decision-making. At the same time, efforts to modernize educational infrastructure, such as creating the “DIGITAL INNOVATION SPACE” and “Art Tech” hub, reflect LNTU's focus on future growth. The “LNTU Veteran Hub” development and the implementation of programs to support veterans and internally displaced persons show the university's commitment to social responsibility and community support. LNTU's sustained participation in international projects and strategic alliances, such as Erasmus+ and USAID, has allowed the university to enhance its academic offerings, strengthen its research capabilities, and maintain a competitive edge. Implementing a comprehensive internal quality assurance strategy, even under martial law, emphasizes LNTU’s dedication to upholding high standards of education and governance. Overall, LNTU's actions during the war reflect a robust and adaptive governance structure prioritizing innovation, social responsibility, and continuous improvement, ensuring the university’s sustained growth and relevance in adversity.

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Chapter 12.
Maintaining academic quality at frontline universities in wartime

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Introduction

The ongoing war in Ukraine has severely impacted the educational landscape, particularly in conflict zones like Kharkiv. The city, a prominent educational hub, has long been home to some of the most prestigious universities in the country. However, with the onset of the war, Kharkiv's universities have faced significant disruptions to their operations. As bombs and artillery attacks have threatened the safety of students and faculty, the traditional classroom environment has become increasingly complex, if not impossible, to sustain. In response, Kharkiv's higher education institutions (HEIs) have rapidly adapted to remote education, leveraging digital tools and platforms to ensure academic continuity. This shift, while essential, has posed various challenges, from technological limitations to the need for new pedagogical approaches.

The transition to digital learning has been a critical response to the crisis, enabling students to continue their education from home or safer locations. Using online platforms, virtual lectures, and digital resources has ensured that education remains accessible even when physical attendance is not feasible. Universities have quickly embraced these new learning modes, but the shift has not been without its hurdles. Many students and faculty members face difficulties with unstable internet connections, a lack of proper technological equipment, and the emotional strain of living through a war. In this context, universities have had to rethink not only how they deliver education but also how they maintain the quality of learning and

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ensure that students remain engaged in a time of immense stress and uncertainty.

At the same time, universities in Kharkiv have faced the broader challenge of sustaining academic continuity amidst the realities of wartime. The interruption of normal educational processes, such as the cancellation of in-person exams, limited access to research facilities, and the disruption of the academic calendar, has made it difficult for universities to uphold the standards of education they had previously set. Faculty members are now tasked with finding new ways to evaluate student performance, ensure that curricula are still being followed, and support students whose personal lives have been deeply affected by the war. This situation raises important questions about what it means to maintain academic excellence in a crisis and how universities can adjust their expectations while ensuring that students receive a meaningful education.

The role of the United Nations Sustainable Development Goals (UN SDGs) has been especially crucial in guiding Kharkiv's universities through this period of uncertainty (UN SDGs, 2024a). The UN SDGs provide a framework for institutions to navigate the complex challenges they face while ensuring they continue contributing to global educational, social, and environmental goals. SDG 4, which focuses on ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all, has been central to the strategies adopted by Kharkiv's universities. Despite the war, universities have strived to make education accessible to all students, regardless of their circumstances, while promoting peace, justice, and strong institutions. By aligning their responses to the war with these global goals, Kharkiv's universities have not only preserved their educational mission but also strengthened their commitment to social responsibility and resilience.

This chapter will explore how Kharkiv's universities have adapted to digital learning and remote education challenges during wartime. It will examine the technological, pedagogical, and emotional hurdles universities have faced and their strategies to overcome them. Additionally, it will analyse the role of the UN SDGs in maintaining academic standards and promoting resilience in the face of crisis, highlighting the ongoing efforts of Kharkiv's educational institutions to ensure that their students continue to receive high-quality education despite the harsh realities of war.

Overview of the Challenges Faced by Frontline Universities in Wartime

During the ongoing war in Ukraine, the higher education (HE) sector has faced profound challenges but continues to persevere and adapt. In cities like Kharkiv, where the conflict is particularly intense, universities have suffered both physical destruction and massive displacement of students and faculty. Despite these hardships, Ukrainian universities, supported by international partners, have shifted to hybrid and remote learning models to maintain educational continuity.

The Russian Federation invasion has resulted in significant infrastructure damage, with many institutions forced to operate virtually or relocate to safer regions. For example, over 60 universities across Ukraine have been damaged or destroyed since February 2022. In the Kharkiv region, Simon Kuznets Kharkiv National University of Economics (S. Kuznets KhNUE, 2024a) and other institutions are similarly affected but are trying to continue offering education remotely despite the challenges.

International cooperation has been vital. Programs like the “Twinning” initiative, which pairs Ukrainian universities with those in Europe, have helped maintain academic services and support displaced students and faculty (Ukrainian Higher Education, 2024).

Additionally, global organizations, such as the United Nations and international academic consortia, are focused on providing financial aid, educational resources, and safe learning spaces for Ukrainian students.

Ukraine's Ministry of Education, along with international support, has worked to ensure that students can continue their education despite power outages and other difficulties (Ministry of Education and Science of Ukraine, 2024). However, remote learning is not a perfect substitute for in-person education, especially in fields requiring practical, hands-on experience. It is worth noting that many foreign students study in Ukraine. Kharkiv, one of Ukraine’s largest cities and a major educational hub, has a long-standing tradition of academic excellence. Home to many prestigious universities, the city plays a crucial role in Ukraine’s HE system, offering a wide range of programs and research opportunities. However, the war has significantly impacted Kharkiv’s educational institutions, leading to disruptions in their functioning.

Kharkiv is the second region after Kyiv in terms of the number of international students. In 2023, 11,693 foreign students were counted in

the Kharkiv region (Fig. 12.1). Despite the military actions in the Kharkiv region, students did not stop entering Kharkiv universities and continued their studies. This indicates a high level of education adaptation at universities to new conditions that arise in difficult times of military actions and coups.

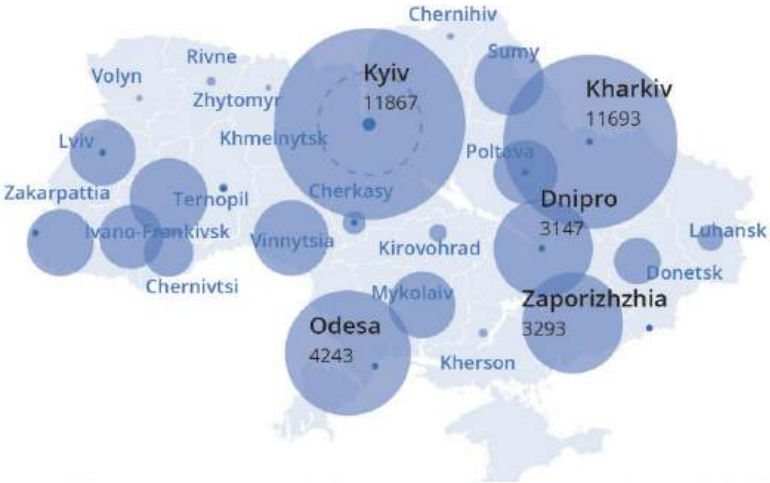

Fig. 12.1. Number of foreign students by regions in 2023

Source: Ukrainian State Centre for International Education, 2023

Analyzing the most popular universities among foreign students in 2023, Karazin Kharkiv National University is one of the most popular among foreign students (Fig. 12.2), it is the leader, and it had 3,389 foreign students in 2023 despite the war in Ukraine. The university offers a wide range of undergraduate and postgraduate programs in English, covering various fields such as humanities, sciences, engineering, and social sciences. Known for its academic excellence and research output, Karazin University attracts students from around the world seeking high-quality education (V. N. Karazin KhNU, 2024b). Karazin University provides comprehensive support for international students, including assistance with visas, accommodation, and integration into

university life. Located in Kharkiv, a city known for its vibrant cultural scene and student-friendly atmosphere, the university offers a dynamic environment that appeals to international students.

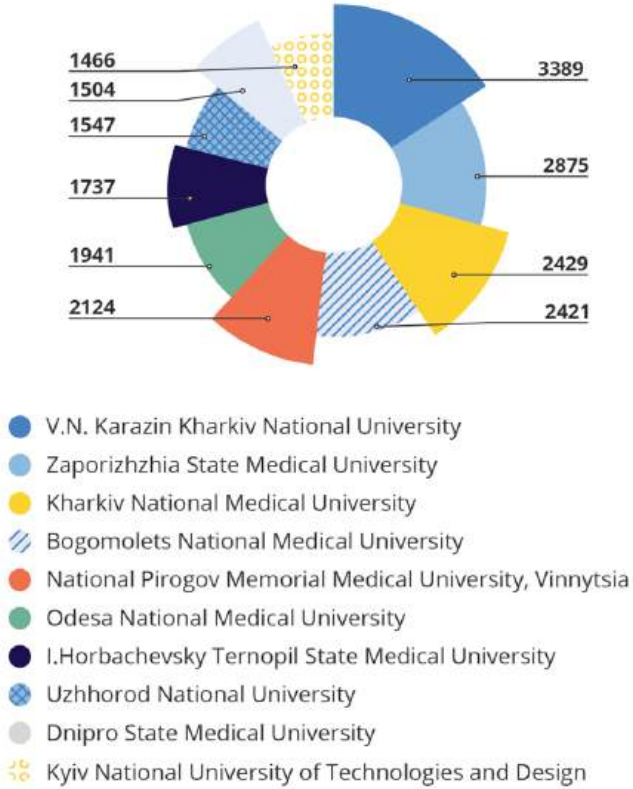

Fig. 12.2. Most popular universities among foreign students in 2023
Source: Ukrainian State Centre for International Education, 2023

During wartime, universities in the Kharkiv region, including Karazin Kharkiv National University, have responsibilities towards their international students V. N. Karazin KhNU, 2024d). Universities need to ensure the safety and security of all students, including international ones. This involves

guiding safety measures, emergency procedures, and evacuation plans if necessary. Institutions must strive to maintain educational continuity, whether through online learning or temporary relocation of classes. This helps ensure that international students can continue their studies with minimal disruption. Clear and timely communication is crucial. Universities should keep international students informed about any changes or developments, including information on security, academic adjustments, and available support services. Wartime can be stressful and challenging. Universities should offer counselling and psychological support to help students cope with the emotional and mental impact of the situation. Providing support with visa issues, accommodation, and other administrative matters becomes even more critical during such times. Universities may need to assist students in navigating these challenges amidst the conflict. Universities often work with local and international authorities to ensure that student's needs are met and that they have access to necessary resources and assistance. Students from different countries study in Ukraine; the most popular ones are shown in the picture (Fig. 12.3).

Foreign students choose Ukrainian universities for various compelling reasons (Fig. 12.4). Firstly, the quality of education is a significant draw, as many Ukrainian universities are accredited and recognized internationally, offering high-quality programs in diverse fields (Ukrainian State Centre for International Education, 2023). The emphasis on research and development also provides students valuable opportunities to engage in cutting-edge projects.

Another significant factor is affordability. Compared to many Western countries, Ukrainian universities generally have lower tuition fees, making higher education more accessible. Additionally, the cost of living in Ukraine is relatively low, which is advantageous for students on a budget.

Another appeal is the wide range of academic programs available. Ukrainian universities offer diverse courses across disciplines such as medicine, engineering, humanities, and sciences, often with options for English-taught programs. This variety allows students to find specialized programs that may not be available elsewhere (Ministry of Education and Science of Ukraine, 2024).

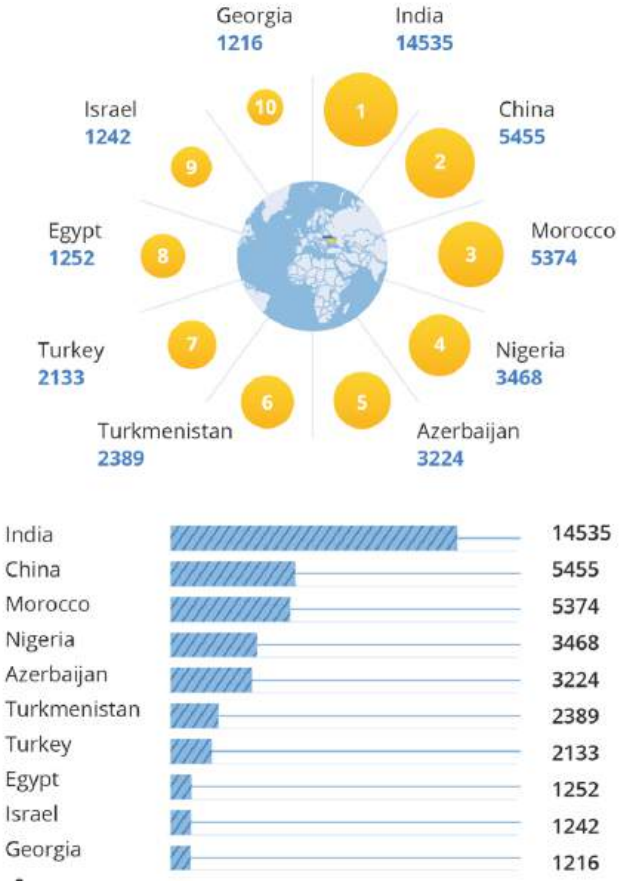

Fig. 12.3. The most popular countries from which students come to study in Ukraine

Source: Ukrainian State Centre for International Education, 2023

Students are also attracted by the rich cultural and academic experience Ukraine offers. The country's vibrant cultural heritage and active student life create a unique and enriching environment. Moreover, many Ukrainian universities have international partnerships and collaborations, enhancing the global recognition of their degrees.

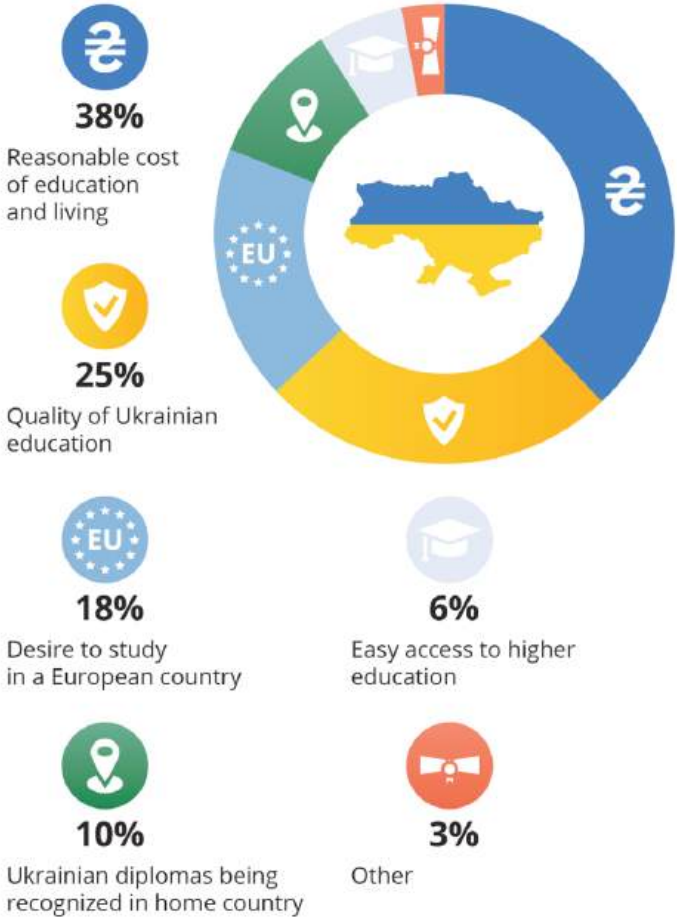

Fig. 12.4. Why foreign students choose Ukrainian universities

Source: Ukrainian State Centre for International Education, 2023

Language options are also important. Many Ukrainian universities offer programs in English, which makes it easier for non-Ukrainian speakers to study there. Additionally, students have the opportunity to learn Ukrainian, which can be beneficial for personal and professional growth (Ministry of Education and Science of Ukraine, 2024).

Historical and political ties can influence students' decisions, especially for those from neighboring countries or those with familial connections to the region. Ukrainian universities are known for their advancements and specialized programs for students seeking education in emerging disciplines, such as IT and engineering.

Overall, the affordable tuition, high-quality education, rich cultural experiences, and diverse program offerings make Ukrainian universities an attractive option for international students.

When considering universities in the Kharkiv region, the situation that developed during military actions and how universities maintain the quality of the educational process, the largest in terms of the number of domestic and foreign students in the Kharkiv region is the V.N. Karazin University.

V. N. Karazin Kharkiv National University

Established in 1804, V. N. Karazin Kharkiv National University (V. N. Karazin KhNU) (Fig. 12.5). is one of Ukraine's oldest and most prestigious universities. It offers a wide range of programs in sciences, humanities, and professional fields and has a strong focus on research (V. N. Karazin KhNU, 2024a).

Due to Kharkiv's proximity to the Russian Federation's border, the city has been under heavy bombardment, leading to significant damage to infrastructure, including the university. Students and faculty have faced displacement, and the institution has struggled to maintain normal operations (Fig. 12.6).

V. N. Karazin KhNU has transitioned many of its programs online to ensure continuity in education. The university is also collaborating with international institutions to provide students with opportunities for exchange programs and access to remote learning resources.

Karazin University is 218 years of development, remarkable achievements in science and education, known not only far beyond the borders of Ukraine but also around the world.

In pre-war times, we collaborated with dozens of leading foreign universities, nurturing hopes and building grand plans for scientific achievements, breakthroughs, and discoveries. For a long time, Karazin University was the sole representative of our country among the top 500 most prestigious global universities in the authoritative QS ranking.

Fig. 12.5. V. N. Karazin Kharkiv National University before the war

Source: V. N. Karazin KhNU, 2024a

Fig. 12.6. V. N. Karazin Kharkiv National University. The destruction brought by the war to the Karazin Business School

Source: V. N. Karazin KhNU, 2024c

Already in the first month of the war, a rocket strike completely destroyed the building on Myronosytska Street. The sports complex "Karazinsky" was hit directly, and the central and northern buildings, the Institute of Physics and Technology, dormitories, the Nature Museum, and the old building of the central scientific library on Universytetska Street were damaged (V. N. Karazin KhNU, 2024c). The professors'

and staff's residences were located in areas of intense shelling, and as a result, they were destroyed and rendered uninhabitable due to low temperatures.

From the first days of the war, a humanitarian headquarters was established to assist students, faculty, staff, and their families quickly, organize evacuations, and relocate.

The Alumni Association was one of the first to respond and began supporting the Karazin community by collecting donations to help those affected by the Russian Federation shelling during the war. The initiative "Help Karazin University" was launched (V. N. Karazin KhNU, 2024e).

However, the university was supported not only by alumni but also by people from all over Ukraine and the world, who hold Karazin dear.

In particular, alumna and staff member of the Faculty of Sociology, Paralympic table tennis champion Marina Lytovchenko, initiated a charity auction, with her gold Paralympic medal being the auction item. As a result of the auction, 30 000 USD was raised (V. N. Karazin KhNU, 2024e).

Honorary Doctor of Karazin, poet, writer, musician, and public figure Serhiy Zhadan, during charity concerts in Ukraine and Germany, raised 500 000 UAH, which was directed to support the activities of the university's central library (V. N. Karazin KhNU, 2024e).

Karazin also supports the Slobozhansky Youth Academic Symphony Orchestra. After years of creative collaboration, the university became the home of the youth orchestra. Since February 2022, it has been based in one of Karazin's buildings. Over the course of several months, the musicians performed in Poland, and the funds raised from these concerts were, in part, directed to support Karazin University (V. N. Karazin KhNU, 2024e).

The assistance began to gain momentum and scale up even further. It was decided to create a charitable foundation to support the protection of the university's scientific, educational, and spiritual achievements, preserve Ukraine's intellectual potential, and bring the country closer to victory over aggressor – the Russian Federation.

The Kharkiv Karazin University Foundation was presented on November 3, 2022. The foundation's goal is to support the university and its community during the difficult wartime and post-war periods (V. N. Karazin KhNU, 2024e).

As of January 6, 2023, thanks to the generosity of donors, 2 000 000 UAH had been raised (V. N. Karazin KhNU, 2024e).

In the first weeks of the war, this included tons of humanitarian aid from Lviv, Ternopil, and Cherkasy, as well as from Poland and Germany, the "Ukrainians in the Netherlands" foundation, the National University "Ostroh Academy", and Pavol Jozef Šafárik University in Košice (Slovakia). With the support of the Ministry and the friendly assistance of the National University "Yuri Kondratyuk Poltava Polytechnic," it was possible to establish a temporary coordination center for Karazin University in Poltava and expand logistics capabilities to receive those affected from Kharkiv.

The strong support from the university's partners and friends contributed to the university's continued operation and the restoration of the educational process by the end of March. Karazin University students gained free access to the "Research4Life" platform resources. In collaboration with the University of Macerata, Karazin launched the remote course "Introduction to Machine Learning." The Board and Council of the European University Association waived membership fees for all universities in Ukraine for 2022.

Thanks to fruitful collaboration with partners, Karazin expanded educational opportunities for its students. With the support of the GOROD Cultural Centre, the university opened a representative office in Germany, allowing prospective students to begin their studies in Karazin's bachelor's programs in Munich (V. N. Karazin KhNU, 2024f).

Partner collaborations included:

- Igbenedion University, Edo State, Nigeria
- "NVP Ukrorgsintez" LLC in cooperation with "Enamine Ltd." (Kyiv, Ukraine)
- The Institute of Chemistry, University of Côte d'Azur (Nice, France)
- Friedrich II University of Naples (Italy) … and many more.

The "Aurora" European University Alliance was among the first to support Karazin after the war began. As a sign of solidarity, they provided a check for over 1.5 million UAH for the university's restoration (V. N. Karazin KhNU, 2024e).

In March 2022, Karazin joined the "Unity Initiative" program, launched by the "Cormack Consultancy Group" in partnership with "Universities

UK" and with the support of Ukraine's Ministry of Education and Science. This was in response to the threats to HE in Ukraine posed by the Russian Federation invasion. As part of this initiative, a Memorandum of Understanding was signed between V.N. Karazin Kharkiv National University and the University of York (UK). Several key initiatives were developed and implemented, including a Summer School and online language courses for Karazin's students and faculty. To support the effective organization of the educational process, Karazin received 200 laptops for educators. "Begin Group", organizers of international online education fairs, offered the opportunity to present Karazin's educational programs, faculties, and institutes to international students for free (V. N. Karazin KhNU, 2024e). As part of joint cooperation programs with Hanjou Normal University (China), 227 Chinese students were admitted to the university for academic mobility programs, enrolling in bachelor's degree programs in the Faculties of Chemistry, Physics, and the Faculty of Geology, Geography, Recreation, and Tourism. Additionally, 28 Chinese students were admitted to the master's programs in the Faculties of Chemistry, Biology, and the Faculty of Mathematics and Computer Science (V. N. Karazin KhNU, 2024d).

Karazin University on the Frontline

Together with all Ukrainians, Karazin's community took up arms to defend their land. They fight every day, both on the front lines and in the rear. The university community values the courage and bravery of university staff who are currently defending our country. They are already an integral part of our unforgettable history. Kharkiv National University named after V. N. Karazin has launched a new video project, "*Karazintsi. Learning Despite the War*" (V. N. Karazin KhNU, 2024g).

Digital Education Centre at Karazin University

On June 6, 2023, the Digital Education Centre was officially opened – a multifunctional space for children aged 6 to 17. The project was organized through the combined efforts of the Karazin Business School, AVSI Foundation, the Emmaus NGO, and partner organizations. This center aims to provide innovative educational opportunities, promoting digital skills development for young learners in a safe and supportive environment (V. N. Karazin KhNU, 2024b).

Karazin University Continues to Enroll International Students

The number of students at V.N. Karazin KhNU continued to grow in 2023. While around 3,000 students enrolled in the summer of 2022, in 2023, the number exceeded 5,000. "Before the war, we had over 22,000 students, including 5,000 international students. Now, more than 17,000 students are receiving education. This is a good number for a city on the frontlines," said the university's vice-rector, Anatoliy Babichev, with optimism (V. N. Karazin KhNU, 2024d).

Currently, there is no significant outflow of students, unlike in the first year of the war when many young people transferred to universities in western or central Ukraine, or even stopped studying altogether. Classes and exams, as in all Kharkiv universities and schools, are held online. This is primarily because many students are now outside the city or even the country. Additionally, while the university has shelters, there are not enough to relocate classrooms and laboratories and hold in-person classes for all students. However, despite these challenges, the knowledge and degrees offered by Karazin remain attractive not only to Ukrainians but also to international students. This year, about a thousand international students enrolled at the university (V. N. Karazin KhNU, 2024f).

Before the war, most international students enrolled in the medical or economic faculties. Now, they have started enrolling in online programs in mathematics, physics, and chemistry. Last year, we had a significant number of students from China, as the country officially recognized online education. We also have students from African and Arab countries. There were almost no students from India this year, but those who started their studies earlier remain (V. N. Karazin KhNU, 2024d). The Medical Faculty, which was significantly impacted by the outflow of foreign students, is now actively providing postgraduate education to Ukrainian doctors.

Simon Kuznets Kharkiv National University of Economics

Simon Kuznets Kharkiv National University of Economics (S. Kuznets KhNUE) is one of the leading economic and business education institutions in Ukraine (S. Kuznets KhNUE, 2024a). Founded in 1930, the university is named after the Nobel laureate economist Simon Kuznets, who was born in Kharkiv. S. Kuznets KhNUE is known for its strong emphasis on economics,

finance, business administration, and management studies. The university offers a range of undergraduate, graduate, and doctoral programs and is deeply involved in research related to economics and business, contributing significantly to Ukraine's economic policies and development (Fig. 12.7).

Fig. 12.7. Simon Kuznets Kharkiv National University of Economics before the war

Source: S. Kuznets KhNUE, 2024a

Kharkiv, being on the frontline of the conflict, has faced heavy shelling and destruction, and the university has not been immune to these challenges. Like other universities in the region, S. Kuznets KhNUE has faced significant disruptions due to the ongoing war (Fig. 12.8).

Many students and faculty members have been forced to leave the city, relocating to safer areas within Ukraine or abroad. This displacement has created logistical challenges for maintaining regular classes and academic activities.

While the university's physical infrastructure has been damaged in certain areas, S. Kuznets KhNUE's central facilities have managed to sustain some continuity. However, ongoing threats of conflict in the region have made it difficult to plan for the full resumption of in-person classes.

As an economic research hub, S. Kuznets KhNUE had numerous collaborations with international academic institutions and business partners. The war has disrupted many of these partnerships, although efforts are being made to maintain them through remote collaboration.

Adaptation and Response

Despite the challenges, S. Kuznets KhNUE has shown remarkable resilience by adopting various strategies to continue its academic operations during wartime.

Like many other universities, S. Kuznets KhNUE quickly transitioned to online learning platforms to ensure the continuation of academic programs. The university's strong focus on business and economics has made this transition relatively smooth for theoretical courses.

Fig. 12.8. Simon Kuznets Kharkiv National University of Economics. The destruction brought by the war (the picture was made by the author)

Faculty have adapted to delivering their content through digital platforms such as Zoom, Moodle, and Google Classroom. This has allowed the university to keep most of its coursework on schedule despite the challenging circumstances.

S. Kuznets KhNUE has sought to strengthen its international collaborations with universities and institutions outside Ukraine. Through partnerships with universities in Europe and beyond, the university has facilitated exchange programs, allowing students to continue their studies abroad temporarily or participate in joint degree programs (S. Kuznets KhNUE, 2024a).

International organizations have also provided financial support and scholarships to displaced students and those affected by the war, ensuring they can continue their education without interruptions. The university has adapted its research agenda to focus on the current economic challenges facing Ukraine due to the war. Topics such as the economic impact of the conflict, post-war reconstruction, and rebuilding Ukraine's economy have become central themes in the university's research efforts. Faculty members and students are involved in projects aimed at analyzing Ukraine's wartime economy, developing strategies for economic recovery, and studying global supply chain disruptions caused by the war.

Recognizing the critical role of entrepreneurship in times of crisis, S. Kuznets KhNUE has introduced new programs and courses related to crisis management, business continuity, and resilience during economic downturns. These programs aim to equip students with the skills needed to help businesses survive in the war-affected economy and to contribute to Ukraine's long-term economic recovery (S. Kuznets KhNUE, 2024c).

The university has implemented mental health support services, recognizing the psychological toll that the war is taking on students and staff. Virtual counseling services, peer support networks, and well-being workshops have been made available to help the university community cope with the trauma of war. Financial assistance and flexible learning options are also provided to students who are facing difficulties, whether through scholarships or through the provision of additional resources for those in need (S. Kuznets KhNUE, 2024a).

Looking ahead, Simon Kuznets Kharkiv National University of Economics is expected to play a significant role in Ukraine's post-war economic reconstruction. S. Kuznets KhNUE's expertise in economics will be critical in advising the government on economic policies for rebuilding the nation (S. Kuznets KhNUE, 2024a). The university's research into economic recovery

strategies will provide valuable insights for Ukraine's policymakers. As the country rebuilds, entrepreneurship and innovation will be key drivers of economic recovery. The university is well-positioned to train the next generation of business leaders and entrepreneurs who will help restart and grow the war-damaged economy.

Post-war Ukraine will rely heavily on foreign investment and rebuilding its international trade networks. S. Kuznets KhNUE's international relationships and focus on global economics will be instrumental in preparing students for the task of reintegrating Ukraine into the global economy. The university's focus on economics and management makes it uniquely suited to study and contribute to the rebuilding of infrastructure, industries, and public services after the war. Programs related to public policy, finance, and development economics will help shape Ukraine's post-war recovery plans.

S. Kuznets KhNUE offers a wide range of opportunities that enhance both local and international academic experiences for students (Table 12.1).

Table 12.1. Local and international academic experiences opportunities for students at S. Kuznets KhNUE

Opportunities	Description
Dual diploma programs	Students have the opportunity to earn dual diplomas through collaborative programs with international universities, allowing them to gain qualifications that are recognized both in Ukraine and abroad. The fruitful collaboration since 2005 with the University of Lyon-2, France, laid the foundation for the launch of dual-degree programs in "Business Informatics" and "Tourism." An Italian-Ukrainian dual-degree program was also established in the fields of "International Business" (Simon Kuznets Kharkiv National University of Economics) and "Global Economy and Business" (UNICAS, Italy) in partnership with the University of Cassino and Southern Lazio (Italy).
Academic mobility programs	The university participates in various academic mobility initiatives, such as Erasmus+, which enable students to study at partner institutions in other countries for a semester or more, expanding their academic and cultural horizons. For example academic mobility for lecturers in 2024, Friedrich Alexander University (FAU) (Germany).

Opportunities	Description
International projects	Simon Kuznets University is actively involved in international research and educational projects, collaborating with foreign institutions to address global challenges and contribute to advancements in education, technology, and economics.
Centres of international cooperation	These centres, where students can get dual diplomas, foster relationships between the university and institutions worldwide, promoting joint research, student exchanges, and cultural partnerships that strengthen the university's global presence.
Internship programs	Students have access to internships both locally and internationally, helping them gain practical experience in their field of study and develop professional skills needed in a global workforce.
Lectures by foreign teachers	The university regularly invites professors and lecturers from leading international institutions to deliver guest lectures, exposing students to global perspectives and the latest developments in various academic disciplines.
The School of Robotics and Programming "IT-Dreams"	based at Simon Kuznets Kharkiv National University of Economics, is expanding and, alongside the IT-Kids project, is launching new initiatives under the IT-Sprint program. An open session was held at the school, featuring Alexander Voinov, a specialist from EPAM Ukraine. Under his guidance, participants explored the possibilities of Frontend development in just two hours.

Source: S. Kuznets KhNUE, 2024b, 2024c

These opportunities reflect S. Kuznets KhNUE's commitment to internationalization and academic excellence, aligning with global standards of HE. It is also worth noting that informal learning is very developed at the university.

The university offers a variety of informal education opportunities (S. Kuznets KhNUE, 2024b, 2024c), which complement formal academic programs and provide students with practical skills, global exposure, and personal development outside the traditional classroom setting (Table 12.2).

These informal educational experiences at S. Kuznets KhNUE help students broaden their learning beyond the academic curriculum and equip them with practical, applicable skills essential for their future careers.

Table 12.2. Informal learning opportunities of S. Kuznets KhNUE

Informal learning opportunities	Description
Workshops and Seminars	The university frequently organizes workshops on topics such as entrepreneurship, leadership, and digital skills. These events bring in professionals from different industries to offer insights into real-world challenges and opportunities.
Clubs and Student Organizations.	Students can participate in numerous clubs and societies, including economics and business clubs, cultural groups, and creative societies (The School of Robotics and Programming "IT-Dreams"). These provide opportunities for peer learning, teamwork, and project management, developing both personal and professional competencies. At the Kyiv cinema "Zhovten," the award ceremony for the winners of the international documentary and feature film festival *Kharkiv Meets Docs Eastern Ukrainian Film Festival* (KMDE UFF) and the 6th *Independent Ukrainian Short Film Festival "Bardak"* took place. Oleksii Yeroshenko, a student at Simon Kuznets Kharkiv National University of Economics, Faculty of International Relations and Journalism, specializing in 061 "Journalism," received the main prize from the Ukrainian Film Critics Association for his film *The Storyteller*. From July 25 to 29, 2024, Rodion Overko, a first-year student of the Faculty of International Relations and Journalism at Simon Kuznets Kharkiv National University of Economics, specializing in 052 "Political Science," participated in the All-Ukrainian Volunteer Youth Exchange *VidNOVA:UA*. As part of the initiative, 30 volunteers from across Ukraine contributed to the restoration of a youth veteran center in the village of Onykieve, Kirovohrad region.
Soft Skills Training.	Simon Kuznets emphasizes the development of soft skills such as communication, problem-solving, and critical thinking. These programs (career lab) are often offered through career services, student clubs, or extracurricular activities and aim to equip students for the modern job market. From the career lab "Soft & Hard Skills of an IT Manager" – Yulia Khalaberda, Interim DM at ITOMYCH STUDIO. Podcast: Soft and Hard Skills in Modern Business and Education – Vyacheslav Laptev and Yulia Sotnikova.
Hackathons and Case Competitions.	The university organizes and participates in various hackathons, business simulations, and case competitions that allow students to solve real-world problems in a collaborative environment, enhancing their analytical and creative skills. From June 3 to 7, 2024, a training session on best practices at the University of Alicante (UA) in Spain took place as part of the DigiUni project (*"The Digital University – Open Ukrainian Initiative"*).

Informal learning opportunities	Description
Public Lectures and Guest Speakers	Beyond formal lectures, the university hosts public lectures by industry experts, foreign educators, and entrepreneurs, offering students access to diverse perspectives and contemporary issues in economics, business, and technology.
International studying platforms	the university community can access thousands of courses across various disciplines, enhancing both teaching and learning (Coursera, the HURMA platform is one of the most popular HR management systems in Ukraine, functioning as an HRM system, CRM for recruitment, and HR processes etc).

Source: S. Kuznets KhNUE, 2024b, 2024c

S. Kuznets KhNUE has an agreement with Coursera that provides free access to all students and lecturers. Through this partnership, the university community can access thousands of courses across various disciplines, enhancing both teaching and learning. This initiative allows students and faculty to earn certificates in relevant fields without additional costs, supporting lifelong learning and continuous professional development.

By leveraging Coursera's extensive library, students can improve their knowledge in areas like economics, business, data science, and technology, while lecturers can access specialized training and instructional tools to enhance their teaching methodologies. This agreement aligns with the university's efforts to maintain high-quality education even in challenging circumstances, such as the ongoing conflict, by integrating digital and global resources into its curriculum.

So, S. Kuznets KhNUE continues to be a cornerstone of Ukraine's HE in economics, business, and management. Despite the immense challenges posed by the war, the university's adaptability and resilience are helping it continue to educate future leaders and contribute to vital economic research. Its role in post-war reconstruction, particularly in economic recovery and policy development, will be crucial in helping Ukraine rebuild and move forward.

National Technical University "Kharkiv Polytechnic Institute"

Founded in 1885, National Technical University "Kharkiv Polytechnic Institute" (NTU "KhPI") is one of the leading technical universities in

Ukraine, specializing in engineering, IT, physics, and other technical disciplines (NTU "KhPI", 2024). It has strong ties with industries and is known for its research and innovation.

The war has severely impacted the university's infrastructure and research facilities. Many students and staff members have been displaced, while laboratories and research centres have faced interruptions. Despite the challenges, NTU "KhPI" has adapted by shifting to online learning platforms, particularly for theoretical courses. Efforts have been made to relocate some research activities to safer areas of Ukraine. Additionally, the university has established partnerships with international institutions to allow students to complete their education abroad if needed.

Kharkiv National Medical University

Kharkiv National Medical University (KNMU), established in 1805, is one of the premier medical institutions in Ukraine (KNMU, 2024). It trains thousands of medical professionals, including a large number of international students. The university focuses on medical, dental, and pharmaceutical studies and is renowned for its clinical research.

Medical education has been significantly disrupted by the war, with clinics and hospitals in Kharkiv facing immense pressure due to the influx of war casualties. The university has faced challenges in maintaining practical training for medical students. KNMU has shifted much of its coursework online, but practical training remains a challenge due to the need for hands-on experience in clinical settings. Some students have been relocated to other cities for practical placements, and the university has sought international partnerships to provide students with alternative clinical training options.

Kharkiv National University of Radioelectronics

Kharkiv National University of Radioelectronics (NURE), established in 1930, is a leading university specializing in IT, telecommunications, and electronic engineering (NURE, 2024). It is known for producing graduates skilled in cutting-edge technologies and for its strong research initiatives in electronics and cybernetics.

The conflict has significantly disrupted KNURE's operations, particularly its research activities in technology-related fields. Many students and faculty members have been displaced, and some facilities have suffered damage. KNURE has transitioned to remote learning, with many of its programs being offered online. The university has also fostered partnerships with tech companies and universities abroad to continue research and development projects. Additionally, KNURE has focused on cybersecurity and information technology projects that have become even more crucial during wartime.

Kharkiv National University of Internal Affairs

Kharkiv National University of Internal Affairs (KhNUIA) trains specialists in law enforcement, security, and public administration (KhNUIA, 2024). KhNUIA plays a crucial role in training Ukraine's future police officers, investigators, and public administrators. With law enforcement and public safety becoming more critical during the conflict, the university has faced pressure to train professionals to address wartime and post-war needs. However, security concerns and displacement of students and faculty have interrupted normal operations.

KhNUIA has introduced new curricula focused on crisis management, public safety in war zones, and legal frameworks for conflict situations. Online education has become a key tool, and the university is coordinating with international law enforcement agencies for training and support.

Thus, the above universities and many others in the Kharkiv region are subject to many challenges (Table 12.3), where solutions are also proposed. The challenges are immense, but Ukraine's HE system is showing resilience, with a strong push toward innovative solutions and international collaboration that is keeping the education system afloat during this difficult time.

The war in Ukraine has had a devastating impact on the country's education system, particularly in regions like Kharkiv, which has faced significant military action. Universities in the Kharkiv region are dealing with immense challenges ranging from infrastructural damage to displacement of students and faculty. Despite these challenges, institutions are striving to maintain the quality of education

by leveraging the framework of the UN SDG, particularly Goal 4: Quality Education. Despite these challenges, universities in the Kharkiv region are working to uphold the quality of education by aligning their strategies with the UN SDG framework, particularly Goal 4: Quality Education (UN SDGs, 2024b).

Having identified the key challenges and difficulties, it is necessary to provide recommendations that can support HE in the Kharkiv region.

Table 12.3. Major Challenges for universities during wartime

Infrastructural Damage	Displacement of Students and Faculty	Digital Divide and Limited Access to Technology	Mental Health Struggles
The war has resulted in extensive damage to university infrastructure in Kharkiv. Several institutions, including Simon Kuznets Kharkiv National University of Economics, have faced destruction of buildings, libraries, and laboratories. According to reports, more than 60 HEIs across Ukraine have suffered significant damage or destruction, with many universities in the Kharkiv region among the hardest hit (UNESCO, 2023).	A substantial number of students and academic staff have been displaced due to the conflict. According to a study by the Ministry of Education of Ukraine, more than 40 % of university students have had to flee their homes, significantly disrupting their academic progress. Many faculty members have relocated or have been unable to continue their teaching duties due to the direct impact of the war (UNICEF, 2023).	With many universities transitioning to online learning, challenges related to the digital divide have become more pronounced. In regions like Kharkiv, frequent power outages, poor internet connectivity, and limited access to digital devices have made it difficult for students and teachers to engage in remote education. A report from the Ukrainian Ministry of Education showed that 30 % of students in the region lack consistent access to the internet (UNESCO, 2023).	The psychological toll of the war is another significant challenge. Both students and staff are dealing with trauma, stress, and uncertainty, affecting their academic performance and engagement. Without adequate mental health support, it is difficult to sustain quality education in such an environment.

Infrastructural Damage	Displacement of Students and Faculty	Digital Divide and Limited Access to Technology	Mental Health Struggles
Infrastructure Rehabilitation and Safe Learning Spaces (UN SDG 4.A)	*Digital Transformation and Remote Learning (UN SDG 4.3)*	*International Collaboration and Student Mobility (UN SDG 4.B)*	*Psychosocial Support and Mental Health Services (UN SDG 4.7)*
Several universities have begun collaborating with international organizations like UNICEF and UNESCO to rebuild and upgrade educational facilities. Temporary structures and remote learning platforms have been established to ensure continuity of education. For example, Simon Kuznets Kharkiv National University of Economics has adopted digital learning platforms to offer online courses while simultaneously exploring options for safe, temporary physical classrooms.	To mitigate the disruption caused by war, universities in Kharkiv have expanded their digital learning capabilities. Through partnerships with international universities and organizations, institutions have adopted online platforms like Moodle and Zoom to provide remote education. This transition aligns with UN SDG 4.3, which advocates for equal access to affordable and quality technical, vocational, and tertiary education.	Many universities in Kharkiv have established partnerships with European institutions to support student mobility. Programs like the "Twinning" initiative, which pairs Ukrainian universities with international counterparts, have enabled students to continue their studies abroad or access joint programs, helping them achieve their academic goals despite the war (UNESCO, 2023).	Universities in Kharkiv have also focused on providing mental health support to students and staff. Online counseling services, peer support groups, and workshops focusing on emotional well-being are being offered. These efforts align with UN SDG 4.7, which emphasizes the importance of education that promotes emotional resilience and mental health.

Source: UN SDGs, 2024b

Recommendations for Supporting HE in the Kharkiv Region

Analysing the situation in the Kharkiv region and in Ukraine as a whole, recommendations are offered to support the quality of education in HEIs (Table 12.4).

The United Nations Sustainable Development Goals (UN SDGs), particularly Goal 4: Quality Education, can play a vital role in supporting education in Ukraine, especially in war-affected areas like the Kharkiv region. With the conflict severely disrupting educational systems, the UN SDG framework offers a roadmap for both immediate relief and long-term recovery (UN SDGs, 2024a, 2024b).

Table 12.4. Recommendations for Supporting HE in the Kharkiv Region

Recommendation	Description
Expand Digital Infrastructure	To address the digital divide, universities should seek more international assistance in expanding digital infrastructure. This includes the provision of laptops, tablets, and portable internet devices, particularly for students in rural and war-affected areas. Collaborating with technology firms to establish satellite internet in remote areas could help mitigate connectivity issues.
Increase Mental Health Support	Universities should strengthen partnerships with international mental health organizations to provide more robust psychological support to students and staff. Funding for counselling services, trauma-informed teaching practices, and peer support groups will help address the mental health crisis.
Establish International Scholarship Programs	More scholarship programs should be created to allow displaced students from Kharkiv to continue their education abroad. Additionally, universities could increase opportunities for virtual student exchanges, allowing Ukrainian students to access resources and courses from international institutions while remaining in the country.
Long-term Infrastructure Rebuilding	The government, with the help of international donors and organizations, should prioritize the rebuilding of damaged university facilities. These efforts should not only focus on physical infrastructure but also incorporate modern, disaster-resilient designs that cater to the evolving educational landscape.
Foster Global Academic Collaborations	Establish long-term collaborations with international universities to support research, faculty exchanges, and joint degree programs. This would ensure that Ukrainian universities, even in conflict zones, remain connected to the global academic community and continue producing world-class research and graduates.
Decentralized Learning Hubs	Establish a network of decentralized learning hubs in safer, rural areas around Kharkiv, where students can access technology, learning materials, and mentorship. These hubs could be mobile or temporary, allowing displaced students to continue their studies in a safe environment while being connected to university resources via remote platforms.

Recommendation	Description
War-Emergency Micro-Curriculum	Develop a "war-emergency micro-curriculum" focused on practical skills such as crisis management, conflict resolution, mental health first aid, and entrepreneurship in post-war recovery. This curriculum can be tailored to provide both short-term coping mechanisms for students and long-term skills that contribute to Ukraine's post-war reconstruction efforts.
Hybrid International Joint Research Programs	Create hybrid international research programs that allow faculty and students from Kharkiv universities to collaborate on global issues with foreign universities. This would allow Kharkiv researchers to continue their work despite the war while integrating their unique perspectives and challenges into broader global academic discourse.
Blockchain for Credential Security	Implement and improve blockchain technology to secure and validate academic credentials and transcripts for students in conflict zones. This ensures that students who are displaced or whose universities are damaged can still verify their academic achievements, making it easier to transfer credits or continue education abroad.
Virtual Internships with Global Corporations	Partner with multinational companies to offer virtual internships for students from Kharkiv. These internships would allow students to gain real-world experience without needing to leave conflict zones, preparing them for the global job market while ensuring safety.
University-Led Psychosocial Support Networks	Establish a university-wide initiative to train students and faculty in basic psychosocial support, creating peer-led networks that offer emotional and mental health assistance to those affected by the war. This can foster resilience within the university community and offer scalable mental health support across the region.
Green Campus Rebuilding Post-War	Post-conflict, prioritize rebuilding university campuses with sustainable and disaster-resilient architecture, including green energy solutions and environmental sustainability measures. This could position Kharkiv universities as leaders in eco-friendly reconstruction efforts and set a global example for education in post-war recovery.
Crisis-Driven Innovation Labs	Launch "crisis-driven innovation labs" where students work on real-world problems related to conflict recovery, logistics, and rebuilding Ukraine. These labs can focus on practical solutions for local issues and tie into international funding for innovation projects, allowing students to contribute directly to Ukraine's recovery while continuing their studies.

The UN SDGs, especially Goal 4, offer a comprehensive framework that can help Ukraine, and particularly the Kharkiv region, to overcome the challenges posed by the war. The UN SDG framework can support Ukraine's resilience and recovery by focusing on rebuilding infrastructure, enhancing digital learning, supporting displaced students and teachers, and ensuring inclusive, equitable, and quality education (UN SDGs, 2024b).

Through partnerships with international organizations, local governments, and educational institutions, the UN SDGs can help lay the foundation for a robust educational system that will not only survive the current crisis but emerge stronger and more adaptable in the future. Table 12.5 presents ways in which the UN SDGs can contribute to maintaining and improving the quality of education in Kharkiv during and after the war.

When analyzing university governance, integrated governance emerges. Integrated governance in HE represents a holistic approach to managing institutions by combining academic, business, and corporate governance into a unified framework. This approach ensures that all aspects of institutional management work harmoniously to achieve resilience, innovation, and sustainability, particularly in times of crisis.

Table 12.5. Ways in which the UN SDGs can contribute to maintaining and improving the quality of education in Kharkiv during and after the war

Indica-tors	Subgoals	Actions	Explanation of the actions
Emergency Support and Infrastructure Recovery	Goal 4.1: Ensure free, equitable, and quality primary and secondary education. Goal 4.A: Build and upgrade educational facilities that are child-friendly, disability-sensitive, and safe for all.	Rebuilding Schools, universities, Temporary Learning Spaces, Provision of Educational Materials	Partnering with international organizations like UNICEF and UNESCO, the UN SDGs can help rebuild damaged schools and universities in Kharkiv, providing safe and inclusive learning environments. While permanent schools are being reconstructed, the UN SDG framework can promote the establishment of temporary learning spaces to ensure the continuation of education for displaced students. Donating textbooks, e-learning devices, and other essential learning materials to schools that have lost their resources due to the conflict.

Indica-tors	Subgoals	Actions	Explanation of the actions
Digital and Remote Learning Enhancement	Goal 4.3: Ensure equal access to affordable and quality technical, vocational, and tertiary education. Goal 4.4: Increase the number of youth and adults who have relevant skills for employment, decent jobs, and entrepreneurship.	Expansion of Online Learning Platforms, Infrastructure for Remote Learning, Teacher, Lecturer Training	Promote partnerships with tech companies and educational institutions to scale up digital learning platforms in Ukraine, ensuring that students in Kharkiv have access to quality online education. Support the enhancement of digital infrastructure such as internet access and electricity, particularly for students in rural or conflict-affected areas. Provide training for teachers on how to deliver effective online education and use digital tools to engage students remotely.
Support for Displaced Students and Teachers	Goal 4.5: Eliminate gender disparities in education and ensure equal access to all levels of education for vulnerable populations.	Education for Displaced Populations, Scholarships and Financial Support, Mental Health and Well-being Support	Coordinate with humanitarian organizations to ensure that displaced children and youth in Kharkiv and neighboring regions continue their education, whether through local schools, temporary educational programs, or online platforms. Create scholarships or financial aid programs specifically for displaced students, allowing them to continue their education despite financial and logistical challenges. Integrate psychological support and trauma counseling into educational programs to help students and teachers cope with the mental health impacts of war.
Strengthening HE and Vocational Training	Goal 4.3: Ensure access to affordable and quality HE. Goal 4.4: Increase the number of people with relevant skills for decent work and entrepreneurship.	International Collaboration for Universities, Rebuilding Research Infrastructure, Vocational Training Programs	Foster partnerships between Kharkiv universities (e.g., V. N. Karazin Kharkiv National University, Simon Kuznets Kharkiv National University of Economics) and global academic institutions to provide exchange programs, remote courses, and joint research projects. Through global academic and research networks, help rebuild the research capabilities of universities in Kharkiv, particularly in areas critical to Ukraine's recovery, such as economics, healthcare, and engineering. Introduce vocational and technical training programs for young people,

Indica-tors	Subgoals	Actions	Explanation of the actions
			with a focus on skills that will be vital for post-war reconstruction, such as construction, healthcare, technology, and business.
Education for Peace and Civic Engagement	Goal 4.7: Ensure all learners acquire the knowledge and skills needed to promote sustainable development, including human rights, peace, and non-violence.	Civic Education Programs, Entrepreneurship and Leadership Skills	Introduce civic education and peacebuilding courses in schools to foster a sense of unity and promote non-violent conflict resolution. This is especially crucial for rebuilding a war-torn society. Develop programs that teach leadership, entrepreneurship, and innovation, helping students become active participants in rebuilding Ukraine's economy and civil society after the war.
Inclusive and Equitable Education	Goal 4.5: Ensure equal access to education for vulnerable groups, including children with disabilities, minorities, and those affected by conflict.	Support for Vulnerable Groups, Gender Equality in Education	Ensure that children with disabilities, orphans, and those who have been directly affected by the war receive tailored educational support. This can include specialized learning materials, access to online resources, and targeted financial aid. Promote gender equality in education by encouraging equal participation of girls and young women, especially in fields where they are underrepresented, such as STEM.
Policy and Governance Support	Goal 4.C: Increase the supply of qualified teachers and improve the education policy framework.	Capacity Building for Education Authorities, Teacher Recruitment and Training, Monitoring and Evaluation Systems	Provide technical assistance to the Ukrainian government and local authorities in Kharkiv to help them design policies that address the unique educational challenges caused by the war. Encourage the recruitment of more teachers, particularly in conflict-affected areas, and support professional development programs to ensure they are equipped to handle the unique challenges of wartime education. Establish systems to monitor the quality of education in the Kharkiv region, ensuring that both in-person and remote learning maintain high standards.

Source: UN SDGs, 2024b

At its core, integrated governance prioritizes aligning the academic mission of an institution with its operational and strategic needs. It ensures that decisions about curriculum, research, and teaching methodologies are directly connected to financial and infrastructural realities. For example, introducing innovative learning methods such as Artificial Intelligence (AI), Virtual Reality (VR), and Augmented Reality (AR) not only enhances academic quality but also demonstrates efficient resource utilization and forward-looking operational planning.

Integrated governance also emphasizes the interconnectedness of financial and infrastructural strategies with social responsibility. Institutions must balance income generation through grants, partnerships, and scholarships with investments in safe learning environments, psychological support systems, and inclusive policies for displaced students. By integrating these elements, HEIs can create a supportive and adaptable ecosystem that benefits both the academic community and society at large.

Furthermore, integrated governance includes strategic planning and risk management as central components. Institutions must develop flexible, short- and long-term plans that address current challenges, such as rebuilding after crises while positioning themselves to seize opportunities for innovation and global collaboration. This involves fostering international partnerships, enhancing faculty expertise, and promoting research that addresses urgent societal needs.

Ultimately, integrated governance enables HEIs to operate cohesively, ensuring that academic excellence, financial sustainability, and social responsibility reinforce one another (Fig. 12.10). This unified approach makes HEIs more resilient and capable of driving meaningful change, even in the face of complex and unpredictable challenges.

Under academic governance, the emphasis is on modernizing educational content and methods. This includes revising academic disciplines to meet current needs, balancing theoretical and practical education, and expanding research to contribute to the rebuilding of Kharkiv and Ukraine. It highlights adopting innovative approaches such as using AI, VR, and AR to replace destroyed laboratory facilities, improving foreign language education, and increasing access to global platforms like Coursera. The academic focus also includes developing retraining programs

for displaced workers, strengthening international exchange programs, and initiating projects with forced migrants.

Business governance addresses financial sustainability and operational efficiency. It stresses the importance of financial autonomy for HEIs, improving faculty salaries, expanding grants and scholarships, and forming partnerships with businesses for internships. Enhancing resource utilization is key, emphasizing cloud-based resources, digital document management, and flexibility in working and studying hours. HEIs are encouraged to open branches abroad and redefine resource management strategies to support displaced students further.

Corporate governance focuses on resilience and social responsibility. This includes developing strategic risk management plans, safeguarding infrastructure such as bomb shelters and safe learning spaces and ensuring the continuity of education through robust distance-learning systems. Psychological support is prioritized, with mental health resources, retreats, and the expansion of psychological support services for students and staff. HEIs are encouraged to foster social responsibility by involving the academic community in volunteer programs, supporting war victims, and recruiting faculty from other regions to maintain workforce balance and introduce new ideas. Overall, the strategy integrates these governance areas to create a resilient, innovative, and socially responsible education system adapted to the challenges of war and crisis.

Fig. 12.9 outlines a comprehensive strategy for managing and enhancing HEIs during crises, focusing on three interconnected governance areas: academic, business, and corporate governance. The outlined strategy highlights how HEIs can adapt to and address the challenges posed by crises such as war, focusing on resilience, innovation, and social responsibility. By integrating academic, business, and corporate governance, HEIs can ensure continuity and growth even in the most challenging circumstances.

On the academic front, modernization and innovation are essential. Updating curricula, introducing new teaching methods, and expanding research to meet contemporary needs allow HEIs to remain relevant and impactful. Leveraging digital tools like AI, VR, and AR helps maintain educational quality and practical training in environments where infrastructure is compromised. Strengthening international cooperation

through exchange programs, access to global platforms, and retraining opportunities ensures inclusivity and broad access to education.

Fig. 12.9. Comprehensive strategy for managing and enhancing HEIs during crises

Source: Hundal, S., Eskola, A., Wahlgren, A., 2020

Financial sustainability and operational efficiency are equally critical. Achieving financial autonomy, optimizing resource utilization, and forging partnerships with businesses and international organizations help stabilize and grow HEIs. Expanding grants and scholarships promotes inclusivity, while opening branches abroad supports displaced students and sustains the educational process.

Resilience in infrastructure and a commitment to social responsibility are also paramount. Protecting and upgrading facilities, including creating safe learning spaces and robust distance-learning systems, fosters security and continuity. Psychological support for students and staff ensures mental well-being, while social responsibility initiatives – such as volunteer programs and partnerships with local communities – strengthen the role of HEIs in national recovery and rebuilding efforts.

Strategic planning and risk management are key to ensuring flexibility, innovation, and long-term stability. These governance strategies position HEIs as not only capable of overcoming crises but also as pivotal agents of societal resilience and recovery. By integrating the governance approach, HEIs can transform adversity into an opportunity for progress and development.

Conclusions

The war in Ukraine has profoundly impacted HEIs, particularly those in frontline regions like Kharkiv. Despite the immense challenges, including physical destruction, displacement, and interruptions to traditional educational processes, Kharkiv's universities have demonstrated remarkable resilience and adaptability. They have swiftly transitioned to digital and hybrid learning models, leveraging technology to ensure academic continuity while addressing the needs of students and faculty during a time of crisis.

A key conclusion is that maintaining academic quality in wartime requires a flexible and innovative approach to education. Universities in Kharkiv have adopted new pedagogical methods, utilized digital platforms, and redefined evaluation systems to adapt to the realities of remote learning. However, significant challenges remain, such as unstable internet connections, a lack of access to practical training facilities, and the emotional toll of war on students and faculty.

International cooperation has played a critical role in supporting Kharkiv's universities. Initiatives like the "Twinning" program and assistance from global organizations have provided essential resources, financial aid, and collaborative opportunities. These partnerships have been instrumental in sustaining educational services and supporting displaced students and staff.

The ongoing commitment to the United Nations Sustainable Development Goals (UN SDGs), particularly SDG 4 (quality education) has guided universities in maintaining their educational mission. By aligning their efforts with global goals, Kharkiv's HEIs have not only continued to deliver education but have also reinforced their dedication to social responsibility and resilience.

Kharkiv's universities have proven their ability to adapt to extreme circumstances and uphold their academic mission, even in wartime. Their efforts reflect the resilience and determination of Ukraine's higher education sector. However, continued support from the international community, further innovation in remote and hybrid education, and strategies to address practical training gaps will be crucial for ensuring that these institutions can continue to thrive and contribute to the recovery and rebuilding of the region.

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Chapter 13.
Compliance management system in Ukrainian higher education institutions: implementing and transforming

Nataliia Shalimova[1] and Anna Fomenko[2]

Introduction

A responsible attitude to the fulfillment of tasks and functions of employees in any kind of organization is a necessary component of any economic and education system. As the creator of the intellectual foundation, the education environment has a special responsibility to ensure high standards of operations and vigorously monitor high compliance standards, not only from a regulatory best practices perspective but also from an ethical perspective in all aspects of teaching, research, and management.

Compliance Management is necessary to ensure responsible operations. Failing to comply with relevant laws and regulations can result in serious consequences. Non-compliance can cause major reputational damage and disrupt an institution's stability.

Nevertheless, another factor should be considered. As sustainability becomes a key factor in international business development, companies are fundamentally transforming their operations to be in line with environmental, social, and governance standards (ESG) and sustainable development goals (SDGs). This alignment is aimed at accomplishing a positive impact and maintaining competitiveness. Therefore, business leaders need to acquire the skills and knowledge necessary to adopt a strategic approach to the SDGs and ESG, as well as to accurately measure their influence. It can be confirmed based on the 'Report of the Inter-Agency Expert Group on Sustainable Development Goal Indicators' (2016),

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that compliance should be mandatory in the process of achieving the SDGs. (United Nations Statistical Commission, 2016).

In organizations and companies worldwide, Compliance Management functions are increasingly established. Because of its holistic nature, the implementation is challenging for any organization, whether it is mature or large or rather young and small. It is a specific challenge for organizations considering implementing international compliance standards for the first time, e.g. non-EU countries applying for membership like Ukraine. The current war in Central Europe creates a particular difficulty in implementing and maintaining compliance requirements and standards for EU and non-EU countries, e.g. in light of the various EU sanction programs against the Russian Federation (European Union, 2024).

The field of higher education plays a central role in nurturing intellectual capital, encompassing researchers, staff, and students. Educational institutions are bound by a complex network of standards and regulations, both national and international. Compliance takes on added significance for Higher Education Institutions (HEIs) engaged in international educational programs.

An increased exposure to risks and dangers of the internal and external environment characterizes the current conditions for the functioning of business structures. The so-called compliance risks, i.e. the risks associated with misconduct or possible abuse by all categories of employees, are no exception. The realization of such risks can cause significant damage both in the financial and economic interests of business entities and in the field of forming and maintaining a high image (reputation). Therefore, there is a need to identify, assess, and effectively manage these categories of risks. This requires from the HEIs to ensure quality training of managers with modern competencies in the field of compliance management, develop appropriate modules or study programs, and set priorities and guidelines for technical or professional orientations of management training programs.

It is worth noting that compliance is not ignored in Ukraine, there is a certain circle of organizations that pay sufficient attention to it. As noted at an international conference (Vasylieva & Nesterenko, 2024), large and powerful Ukrainian organizations have compliance departments or compliance managers such as DATAGROUP (Datagroup, 2024), DTEK

Group (DTEK Group, 2024), Continental Farmers Group (Continental Farmers Group, 2024), Astarta-Kyiv (Astarta-Kyiv, 2024), Kyivstar (Kyivstar, 2024), banks, for example PrivatBank (PrivatBank, 2024) and insurance companies, for example Insurance Group TAC (TAC, 2024). Ukraine has several nongovernmental groups and associations for conformity, including the National Association for the Prevention of Corruption, the Ukrainian Compliance Association, and the Ukrainian Integrity and Compliance Network (UNIC, n.d.). Compliance officers can participate in a training program run by the Corporate Governance Professional Association (Corporate Governance Professional Association, n.d.) and the Ukrainian Corporate Governance Institute (Ukrainian Corporate Governance Institute, n.d.), which was implemented in 2019 and will remain in effect in the future. An anti-corruption compliance handbook was released in 2018 as part of the training curriculum (The Cabinet of Ministers of Ukraine, 2023).

The monitoring of educational programs in Ukrainian HEIs reveals a lack of adequate representation of compliance management issues. it is noteworthy that courses focusing on compliance management are not part of the mandatory curriculum and are rarely offered as elective courses in study programs for business, economics, and law.

Currently, there is only one Master's study program with the relevant name, introduced in 2023 at Kyiv National Economic University named after Vadym Hetman, titled "Compliance Management of Organizations" (Kyiv National Economic University named after Vadym Hetman, 2024). An analysis of this program indicates a significant focus on anti-corruption management, aligning with the goals and objectives of the State Anti-Corruption Program for the implementation of the Anti-Corruption Strategy for 2021-2025. Compliance management is not represented among the bachelor's programmes of the Ukrainian HEIs either. Only State University of Trade and Economics proposes the bachelor's programme "International Compliance Management", which includes courses focused on law, controlling, and risk management (State University of Trade and Economics, 2024).

The analysis of study programmes in the field "Management and Administration" shows that course on compliance is rather rare presented among the compulsory courses. For example, the study programes "International Business Management" and "Management of Organizations

and Administration" at the National University "Odesa Polytechnic" include the mandatory discipline "International Corporate Compliance and Business Ethics" (National University "Odessa Polytechnic", 2024a; National University "Odessa Polytechnic", 2024b). Only a few HEIs offer a similar course as an elective with different names, such as "Compliance Management of Transport Organizations" at the National Transport University (National Transport University, 2024) and "Compliance control" at the State Tax University (State Tax University, 2024). Therefore, it is evident that, despite the publication of ISO 37301 in 2021, Ukrainian HEIs have yet to fully align their educational programs with international recommendations and European practices in this area.

In recent years, certain Ukrainian HEIs have initiated the inclusion of elective academic courses that, to some extent, address the topic of legal support for compliance management. Specifically, Borys Grinchenko Kyiv Metropolitan University offers an educational and professional program in "Law" at the second (master's) level, which encompasses an optional educational course titled " Legal support for compliance measures of business entities" (Borys Grinchenko Kyiv Metropolitan University, 2024). But as indicated on the website, for the last two years, none of the students has chosen this course. Similarly, Yaroslav Mudryi National Law University incorporates an elective course on "Anti-corruption Compliance in the Economic Activity of Companies" within its study program "Law" at the second higher education (master's) level (Yaroslav Mudryi National Law University, 2024).

However, most study programs in other higher education institutions lack components that provide students with theoretical knowledge and practical skills related to the legal support of compliance management. This is despite the existing demand in the labor market for highly qualified specialists possessing such competencies.

Methodology

The method of collecting information on the current needs of educational institutions in the development of compliance education and training programs in the study was interviews with experts of international partnerships for cooperation in the context of compliance

management in Europe and Ukraine. The research was initiated under the internal university research funding granted to the innovative HSW guidelines "Verbesserung des Mechanismus für die produktive Umsetzung des Compliance Managements in Hochschuleinrichtungen im Kontext der Globalisierung" by Dr. Anna Fomenko, under the supervision of Dr. Professor Ali Arnaout. Prof. Dr. Arnaout (Arnaout, n.d.) is the Director of the International Management Program at the University of Wismar and has 25 years of experience as a consultant in international strategy and compliance management. His teaching and research focus on compliance management, sustainability transformation, digitalization of business models, and management efficiency and flexibility in light of global societal and economic trends. He manages such key projects as the BIP initiative on compliance management education in the EU and Ukraine, as well as the Intensive Mobility Week on "Mechanisms for implementing universal theoretical and practical approaches to compliance management education". It also organizes an annual international symposium on compliance management in Wismar, Germany. Additionally, experts from HEIs were selected for interviews. A group of experts from the following universities was formed: the Universidade Portucalense Infante D. Henrique (Portugal), the University of Chemical Technology in Prague (Czech Republic), the University Toros (Turkey), Budapest Business University (Hungary), the Ukrainian Engineering and Pedagogical Academy (Ukraine), Central Ukrainian National Technical University (Ukraine), and Izmail State University of Humanities (Ukraine). The selection of experts drew on a literature review, an analysis of their practical experience in compliance, and information from stakeholders. The limited number of experts is justified by the initial stage of actively examining the issues of implementing international compliance management approaches in Ukrainian practice, specifically in terms of management and the corresponding educational component.

The conceptual model for creating an effective compliance management program for implementation in Ukraine is based on a cause and effect diagram (also known as a fishbone or the Ishikawa diagram), which is based on brainstorming and further structuring of information from online and offline conferences on compliance management education held by the University of Wismar as part of this research project (Bosch, 1997).

Conceptual Model of Compliance Management Effective Implementation in Ukraine

For a unified approach to understanding the concept, it is considered necessary to cite the following. The expert team of DICO defines Compliance Management System (CMS) as interrelated elements (related to processes and structures) that are developed and implemented to achieve compliance objectives and fulfill compliance tasks (DICO, 2021). Within the first stage of international cooperation between Ukrainian universities and the University of Wismar and EU universities, the philosophy of compliance management (Fig. 13.1) was discussed with the support of American compliance expert Pete Anderson (Anderson, 2024). This basic approach was taken as a basis for the implementation of the compliance management system in Ukraine.

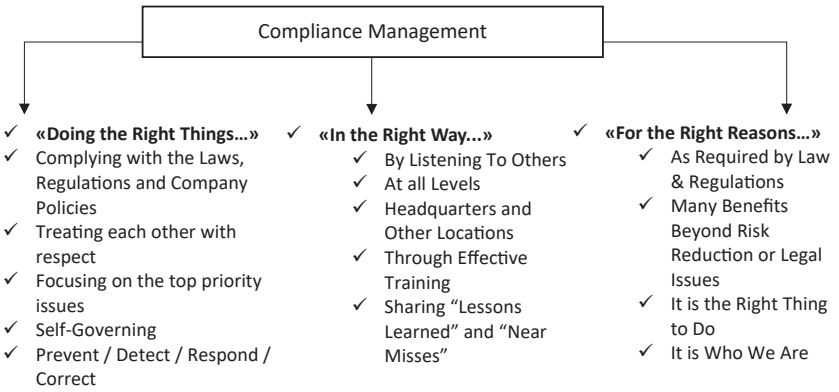

Fig. 13.1. Philosophy of Compliance Management

Source: created by authors based on Anderson, 2024

The conceptual model of effective implementation of Compliance Management in Ukraine can take the following form, as presented in Fig. 13.2. In addition to the information based on the ranking, several points from the International Organization for Standardization considered the features of the conceptual model (International Organization for Standardization, 2018, 2021, 2024).

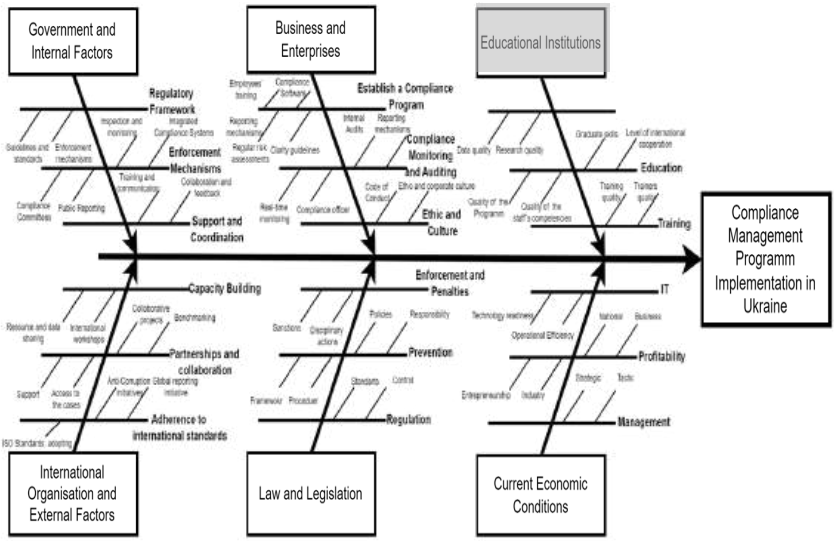

Fig. 13.2. Conceptual Model of Compliance Management Effective Implementation in Ukraine

A cause and effect diagram, commonly referred to as a fishbone or Ishikawa diagram, serves as a conceptual framework for developing an effective compliance management program to be implemented in Ukraine (Bosch Group, 1997). This model was developed through brainstorming and additional organization of data from compliance education conferences held both offline and online by the University of Wismar as part of this research project. The following type of structuring is carried out according to the practical recommendations of Bosch Group Quality Management for structuring the possible causes associated with the effect (problem) (Bosch Group, 2020). Each step represents a branch with corresponding influencing factors.

In the case of a compliance management program, the most influential factors and elements on the effectiveness of implementation are the following: the current economic situation, the specifics of the education system, legislative regulation, the influence and position of the government, business, and industry, and the influence and role of an international

organization and cooperation. Based on the structuring information, several necessary subelements are identified. Research shows that the use of this model can contribute to the rapid and effective implementation of international compliance approaches to the current situation in Ukraine with sustainable effects.

Strategy for Implementation CMS in Ukrainian Higher Education Institutions

The proposed strategy for implementing CMS in HEIs research activities on the peculiarities of the development and implementation of compliance management in higher education institutions in Ukraine is based on European countries' approaches. It focuses on academic teaching and research with practical application and promotes professional, methodical, lawful, and social skills, considering the international dimension of compliance requirements.

Given the topic's scale and complexity, the strategy's concept is based on the principle of a cooperative effort by staff and combined academic disciplines that have traditionally often had competing agendas. Finding optimal solutions requires the development of true interdisciplinary teamwork based on partnership motivation as an internal factor that should positively impact the entire process (Fig. 13.3).

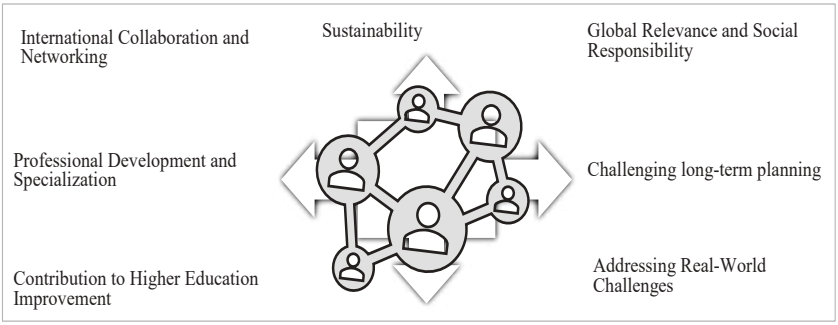

Fig. 13.3. Motivation as an internal factor for the implementing CMS in HEIs in Ukraine

An additional external factor affecting the implementation of CMS in Ukraine is the crime situation influence on the business landscape, which would help in determining the assigned responsibilities of the compliance committee. The instability and volatility of the international business landscape concerning laws and regulations applied in various countries. The uncertain demand volatility in the country's business environment due

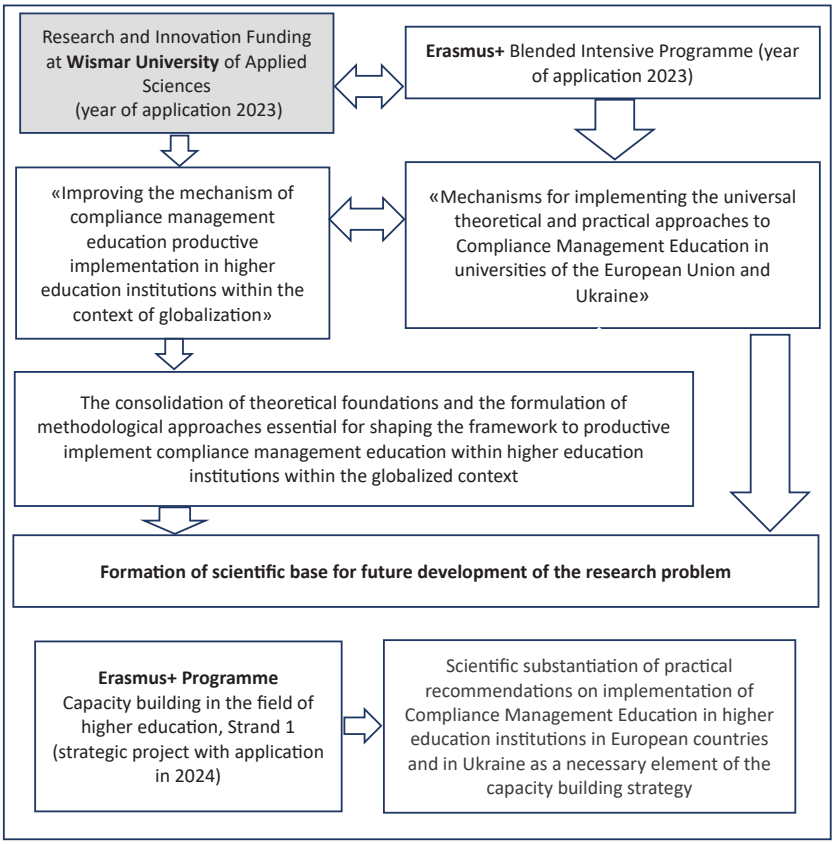

Fig. 13.4. Structure-logical scheme of the relationship of Hochschule Wismar-based research with prospective and ongoing projects in cooperation with UA HEIs (Box 25, Box 26)

to the influence of globalization negatively affects the financial capacity of the organization to implement the compliance doctrine. The compliance doctrine has to be aligned with the legal acts, especially with international standards (Amelicheva et al., 2024).

Having analyzed the work of universities consortium, it should be noted that through motivation and interest in international cooperation, professional development, and a desire to improve the educational process, university academics can quickly respond to the current challenges of the real world in the context of globalization and post-war reconstruction.

The strategy's concept shall include perspectives from different EU HEIs, particularly faculties at Hochschule Wismar, HEI partners, and guest lecturers, covering legal, economic, pedagogical, and social sciences, public policy, professional culture, and compliance management approaches to present a comprehensive mechanism for implementing compliance management into the educational environment in Ukraine, with the start from Central Ukrainian National Technical University (Fig. 13.4). A special focus lies on the practical needs of enterprises when implementing CMS with a view to training and education requirements of future compliance professionals towards the higher education system.

Box 25:

Research project "Improving the mechanism of effectively implementing Compliance Management Education in higher education institutions within the context of globalization" (2023).

Project Objectives:

1. Formalize and systematize theoretical scientific perspectives concerning the implementation of Compliance Management Education approaches in educational institutions.

2. Investigate the experiences of Compliance Management Education implementation within educational institutions, spanning both the federal and international levels.

3. Identify external and internal factors that exert influence on the implementation of compliance management within the globalized context.

4. Propose methodological guidelines for the development of the mechanism for implementing Compliance Management Education in higher education institutions.

5. Develop a conceptual framework for guiding managerial decisions at both tactical and strategic levels pertaining to the establishment and advancement of Compliance Management Education within higher education institutions.

Blendid Intensive Programme "Mechanisms for implementing the universal theoretical and practical approaches to Compliance Management Education in universities of the European Union and Ukraine" (March – April, 2024)

The BIP Course combines research activities on the peculiarities of the development and implementation of compliance approaches in higher education institutions in European countries. It focuses on academic teaching and research with practical application and at the same time promotes professional, methodical, lawful and social skills, considering the international dimension compliance requirements.

With view to the scale and complexity of the topic the BIP concept is based on the principle of a cooperative effort by staff and combined academic disciplines that have traditionally often had competing agendas. Finding the optimal solutions requires developing genuine team interdisciplinary work.

The BIP concept includes perspectives form different faculties at Hochschule Wismar, HEI partners and guest lecturers, covering legal, economic, pedagogical and social sciences, public policy, professional culture and compliance management approaches, to present a comprehensive mechanism for implementing compliance management into the educational environment to a critical public. A special focus will lie on the practical needs of enterprises when implementing CMS with view to training and education requirements of future compliance professionals towards the higher education system.

The week-long conference-programe brought together representatives from various esteemed institutions, including the Central Ukrainian National Technical University (Ukraine), Ukrainian Engineering Pedagogical Academy (Ukraine), Budapest Business University (Hungary), University of Chemistry and Technology in Prague (Czech Republic), University of Infanta D. Enrique (Portugal), and Toros University (Turkey).

The week which concluded with a round table, highlighted the potential for future collaboration and partnership among participants, leading coordinator and manager to emphasized the necessity of formulating a proposal for cooperation between project partners for 2024-2025. This proposal aims to solidify the relationships established during the dialogue sessions and facilitate ongoing collaboration in advancing integrity and compliance practices across diverse HEI. Additionally, the round table discussion on the implementation of compliance management programs for master's students in HEIs emphasizes the importance of collaborative efforts in enhancing compliance education and nurturing a culture of integrity within academic institutions.

In conclusion, the following outcomes are noteworthy:

Establishment of discursive foundations: The event laid the groundwork for constructive discussions, providing a basis for thorough exploration and exchange of ideas within the academic community.

Insights from industry authorities: Participants benefited from the expertise of industry leaders, enriching their understanding of compliance practices and trends within various sectors.

Facilitation of global discourse: The event served as a platform for international engagement, fostering dialogue and collaboration across borders, thereby promoting the exchange of diverse perspectives and best practices.

Practical guidance for implementation: Attendees received practical guidance on the implementation of compliance strategies and the enhancement of Compliance Management Education, equipping them with actionable insights to navigate regulatory complexities effectively.

Academic perspectives and innovations: Academic presentations introduced innovative approaches and perspectives on compliance education restructuring, transnational cooperation, and the integration of novel teaching methodologies, enriching scholarly discourse and advancing academic knowledge in the field.

Encouragement of future collaborative endeavors: The event concluded with an emphasis on fostering future collaboration, underlining the importance of formulating proposals for sustained cooperation between academic institutions, aiming to catalyze ongoing advancements in integrity and compliance practices.

Source: Hochschule Wismar, 2024a; Hochschule Wismar, 2024b

Box 26:

Project "Implementation of the European Approach of Compliance Management in Higher Education in Ukraine" ERASMUS-EDU-2024-CBHE-STRAND-1 (November 2024 – November 2026).

The Consortium is formed by partners from six countries: Hochschule Wismar University of Applied Sciences Technology, Business and Design (Germany), Universidade Portucalense Infante D Henrique-Cooperativa de Ensino Superior Crl (Portugal), VŠCHT Praha Vysoka Skola Chemico-Technologika v Praze (Czech Republic), Wyższa Szkoła Przedsiębiorczości i Administracji w Lublinie (Poland), Central Ukrainian National Technical University (Ukraine), Izmail State University of Humanities (Ukraine), Simon Kuznets Kharkiv National University of Economics (Ukraine), Donetsk State University of Internal Affairs (Ukraine), Ukrainian Engineering Pedagogics Academy (Ukraine). The consortium includes associated partner NGO "Professional Network of Research and HE Managers in Ukraine". Project Goal is enhancing teaching and assessment mechanisms for UA Higher Education Institutions (HEIs), focusing on quality assurance, management, anti-bribery, and innovation in accordance with EU Compliance standards. Objectives of the project:

1. Elevate teaching methods: The project seeks to improve teaching and assessment mechanisms, quality assurance, management, innovation in Ukrainian HEIs by integrating EU Compliance methodologies.

2. Accessible compliance education: Enhance the access and quality of Compliance Management education in the field of entrepreneurship, management, and law in Ukrainian HEIs to foster adaptability to European labour market requirements.

3. Fostering employment stability for Ukrainian university graduates: Ensure stability of employment opportunities for UA university graduates in the context of European integration and globalisation through compliance competencies.

4. Empower digital transformation: Promote digital transformation in teaching Compliance Management in Ukrainian partner HEIs through innovative tools, such as futurebook (e-book), podcasts, videos, and gamification solutions.

Source: Hochschule Wismar, 2024c

Based on the results of the international cooperation between EU and UA HEIs and their research projects, Mechanisms for implementing the universal theoretical and practical approaches to Compliance Management Education in universities of the European Union and Ukraine under the conditions of war and in a post-war period are proposed.

Purpose of the Proposed Further Cooperation between Hochschule Wismar (Germany) and Central Ukrainian National Technical University (Ukraine)

The research in compliance management for the Faculty of Economics of the Central Ukrainian National Technical University – CUNTU is not only a response to the challenges of time and the need to meet EU requirements, but also a logical continuation of research in the field of audit and financial and economic security. The faculty consists of 7 departments: Audit, Accounting and Taxation; Finance, Banking and Insurance; Economic Theory, Marketing and Economic Cybernetics; International Economic Relations;

Economy and Entrepreneurship; Economics, Management and Business; Social Sciences, Information and Archival Affairs. The Faculty of Economics is responsible for training bachelors, masters and PhD in 26 study programs in such fields as "Social and behavioural sciences", "Management and Administration", "International Relations", "Culture and Art", "Humanitarian Science", "Public management and Administration", "Service sector" (CUNTU, 2024 a).

Faculty of Economics proposes 22-month fulltime Master's study programme "Audit, financial control and expertise" and 16-month fulltime Master's study programme "Management of financial and economic security" that require courses on compliance management to broaden the understanding of modern organisational and corporate structure and culture of business entity. The results of research in the sphere of audit, assurance and security are presented in international conference, organized by the faculty of Economics of CNTU (International Scientific Conference "The economic and social Impact of Conflict on the Modern World", 2024; International Scientific and Practical Conference "Development of Accounting, Audit and Taxation in the Conditions of Innovative Transformation of Socio=Economic Systems", 2024). Faculty of Economics of CUNTU took part in two projects: (1) Educational Polish-Ukrainian "Consortium of DOBRE Universities", which is part of the US Agency for International Development (USAID) project "Decentralization brings better results and efficiency" (DOBRE), certified postgraduate training programs "Management in Ukrainian local governments for leaders, middle managers, specialists (professionals) in public services"; in 2020-2022, one group of participants was trained under this certified program (CUNTU, 2022); (2) Enhancing capacity of universities to initiate and to participate in clusters development on innovation and sustainability principles, 609944-EPP-1-2019-1-LT-EPPKA2-CBHE-JP (CUNTU, 2024b). Participation in these projects showed the need for an in-depth study of compliance gaps in public sector entities.

Research, formation of didactic approaches, and introduction of Compliance Management educational components into the system of higher management education in European countries and formation proposals for the development of relevant skills among staff of higher education,

managers, and employees of business in Ukraine is an important area for further work.

Objectives for cooperation:

1. Research of patterns of implementation of Compliance Management approaches in education environment in HEI sectors between partnerships.
2. Understand the practical needs of enterprises when implementing CMS with a view to training and education requirements of future compliance professionals towards the higher education system.
3. Develop didactic competencies of higher education teachers in teaching Compliance Management.
4. Develop research skills to conduct and teach Compliance Management with Ukraine.
5. Research the potential of Compliance approaches in the process of post-war reconstruction and European integration of Ukraine.
6. Develop training modules and the course of Compliance Management for professors and enterprise managers for implementation in European countries and adaptation implementation in Ukraine.

To ensure successful cooperation, good communication, and all activities on time with required quality expectations met, the EU and UA HEIs cooperation scheme should be established with management and coordination structures, offline and online activities, and processes. In the context of globalization and Ukraine's integration into the European space, compliance plays a special role in the interaction of universities with business.

One clear idea of partnership and cooperation is to create unity in thinking about compliance. The detailed needs analysis in the field of EU approaches for implementation of CMS in Ukrainian HEIs was conducted during 2023-2024 in cooperation with all partners to specify the cooperation scheme and design an appropriate methodology and targeted activities (Fig. 13.5).

Transparent integration of the suggested scheme into international activities of the UA HEIs could help create a platform for researching innovations in compliance management and its impact on business processes. The introduction of modern approaches to education will increase the prestige of universities and their attractiveness to students and teachers. Universities and business structures can jointly improve interaction

mechanisms to train qualified compliance professionals and solve current problems.

As representatives of the higher education system, teachers are responsible for the potential of graduates. The main task is not just to increase the level of student's knowledge in compliance but to make it in demand.

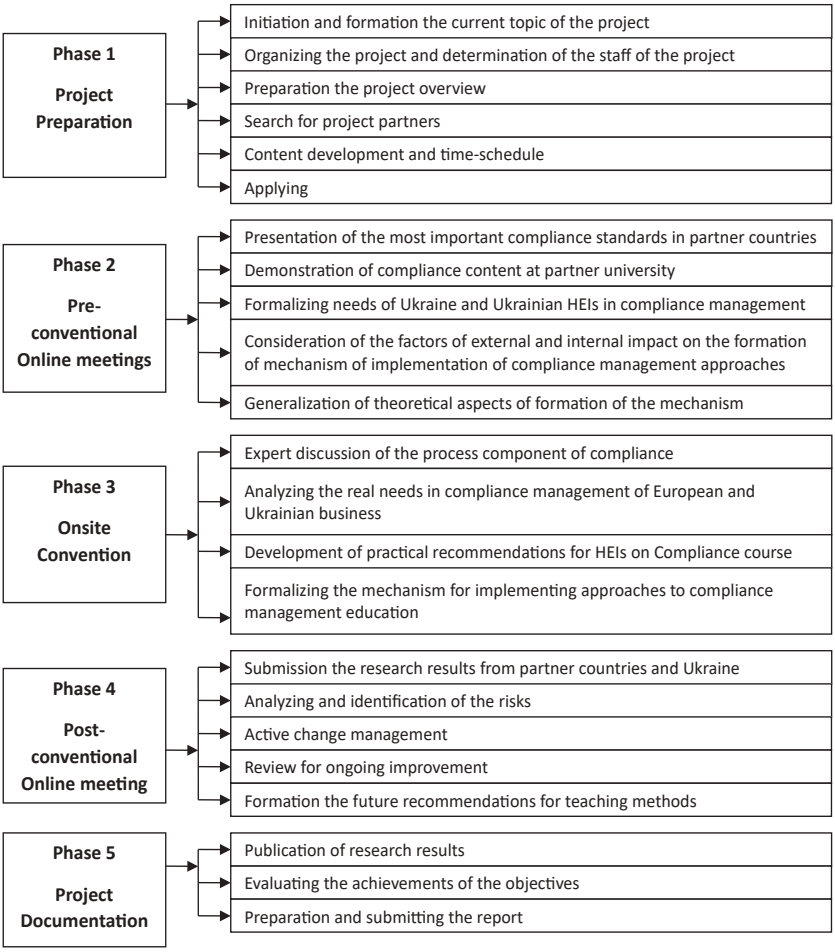

Fig. 13.5. EU and UA HEIs project-based cooperation scheme

In this case, our research team developed the logo "United by Compliance" (Fig. 13.6). The idea behind it is that improving the competence of UA teachers through cooperation with European universities and business structures will affect the level of knowledge and skills of graduates, which in turn will increase business efficiency.

Fig. 13.6. Project Team and Logo

Identifying critical outputs for all partners is necessary for the successful implementation of the cooperation strategy, which focuses mainly on compliance management in Ukrainian higher education institutions (Fig. 13.7).

The outputs include improved research skills and didactic competencies in compliance management through cooperation. Much work was done during the preparation, and now the next task is to create a theoretical basis for developing mechanisms to improve compliance management education.

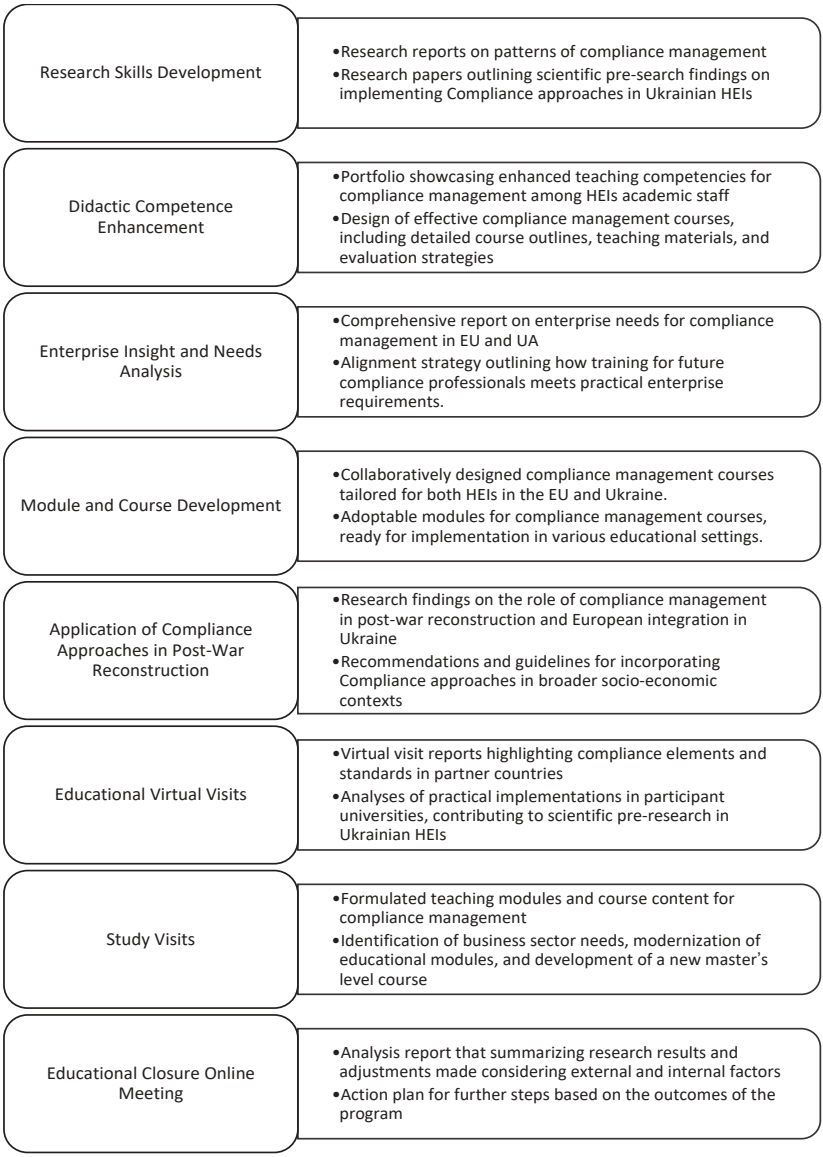

Fig. 13.7. Outputs for improving Compliance Management Education

Germany and other countries have accumulated considerable experience in using compliance to develop and comply with compliance standards in business and economic development. By adopting this experience, Ukrainian organizations and educational institutions can create a microqualification program aimed at training Ukrainian business representatives and students to enable enterprises to achieve sustainability through compliance. It is expected that the implementation of this program will be a catalyst for qualitative changes in the Ukrainian business environment, bringing it in line with European standards and meeting the needs of the current and post-war economic recovery of Ukraine.

Conclusions

In summary, this study emphasizes the need for certified courses and training programs to build compliance competencies that are essential for sustainable development and the European integration of Ukraine. The strengthening of globalization and Ukraine's acquisition of candidate status in the EU membership broadens the possibilities for integrating Ukrainian education and business into the European space.

However, this process has some limitations; it is observed that while international norms are implemented in Ukrainian legislation, their application in business practices has not gained sufficient traction. The main reason for this is the absence of disciplines or specific courses dedicated to informing and disseminating the culture of compliance in the educational programs of Ukrainian higher education institutions (HEIs), highlighting the benefits of its application by domestic enterprises. It is noteworthy that the experience of partner institutions in implementing international projects, including cross-border projects, will provide an opportunity to master innovative methodologies for implementing compliance management in the context of master's education in management and scale its application in the practical work of domestic higher education institutions, as well as institutions overseeing postgraduate training of professionals.

To sum up, this research signifies a pivotal collaboration between Ukrainian higher education institutions and EU universities, responding to the growing importance of European compliance standards. Despite Ukraine's candidate status for EU membership and increasing globalization

trends, the practical application of international norms in business practices remains limited due to the absence of dedicated disciplines in Ukrainian higher education programs.

Another possible area of future research would be to investigate how the Ukrainian educational system must integrate and implement European educational approaches to compliance management.

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