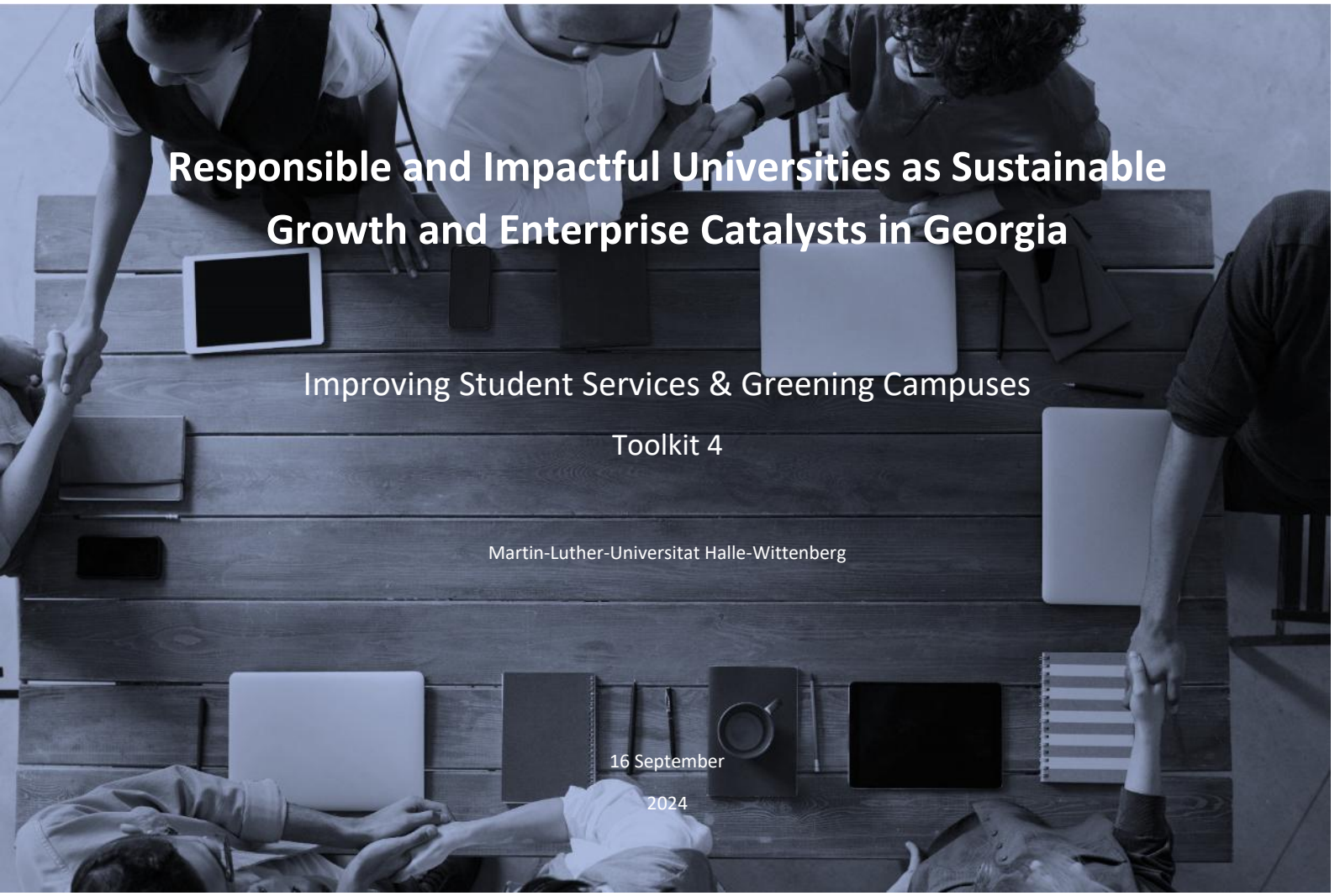
RiHEI



Responsible and Impactful Universities as Sustainable Growth and Enterprise Catalysts in Georgia

Improving Student Services & Greening Campuses

Toolkit 4

Martin-Luther-Universitat Halle-Wittenberg

16 September

2024

Co-funded by the European Union

Project Number: 101125355 (ERASMUS-EDU-2023-CBHE)

CC BY NC SA

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them

FACULTY OF MANAGEMENT University of Lodz

TUM int TUM International GmbH The University Company

MARTIN-LUTHER-UNIVERSITÄT HALLE-WITTENBERG

KUTAISI INTERNATIONAL UNIVERSITY

Content

Introduction 2

Unit 1. Sustainable HEIs 0

1.1 The Role of Higher Education Institutions (HEIs) in Sustainable Growth 1

1.2 Overview of the RiHEI Initiative 2

Unit 2. Enhancing Student Services 5

2.1 The Evolution of Student Services in Higher Education 5

2.2 The Importance of Student Well-Being and Success 6

2.2.1 Psychological Support Services 7

2.2.2 Career Development and Personal Growth 8

2.3 Diversity, Equity, and Inclusion in Student Services 8

2.3.1. Strategies for ensuring inclusiveness in EU 9

2.3.2. Strategies for Gender Equity in EU 10

Unit 3. Strategic Industry Partnerships 12

3.1 Models of Successful University-Industry Collaborations 12

3.1.1 Internships and 1 Co-op Programs 12

3.1.2 Research Collaborations 12

3.1.3 Industry-Sponsored Degree Programs 12

3.1.4 Innovation Hubs and Incubators 12

3.2 Career and Skill Guidance via Strategic Industry Partnerships in Europe 13

3.2.1. EIT Manufacturing's Teaching Factory concept 13

3.2.2. Horizon Europe 15

3.3 Case Studies of Industry-HEI Partnerships in Europe 15

3.3.1 Success Stories: Collaboration in Innovation Hubs 16

3.3.2 Challenges in University-Industry Engagement 16

3.4 Metrics for Measuring the Success of University-Industry Collaborations 17

3.4.1 Integrating Leadership Training and Innovation Ecosystems 18
Unit 4. Digital Transformation of Student Services 19
4.1 The Impact of Technology on Student Services 19
4.1.1 Enhanced Accessibility and Convenience 19
4.1.2 Streamlined Administrative Processes 19
4.1.3 Data-Driven Decision Making 20
4.2 Personalized Learning Platforms 20
4.1.1 E-Mentorship and Digital Career Services 21
4.1.2 Virtual Student Communities and Peer Support 22
4.1.3. The Europass Initiative; An example of a personalized support system 22
Unit 5. Greening University Campuses 25
5.1 Global Efforts in Campus Sustainability 25
5.1.1 Campus Sustainability Ranking Systems 25
5.1.2 The Role of HEIs in Promoting Sustainable Behaviors 26
5.1.3 Impact of University Campuses on Local Communities 28
5.2. Waste Reduction and Sustainable Campus Operations 29
5.2.1 Circular Economy Principles 29
5.5.2 Best Practices in Waste Management in HEIs 30
5.2.3 Reducing Single-Use Plastics on Campus 30
5.2.4 Case Studies: Zero-Waste Universities 31
5.3. Energy Efficiency and Renewable Energy Initiatives 32
5.3.1 Energy Management in HEIs: Challenges and Opportunities 32
5.3.2 Implementing Smart Energy Systems on Campuses 33
5.3.3 Energy Management in HEIs: Challenges and Opportunities 34
5.4 Biodiversity and Ecosystem Services on University Campuses 35
5.4.1 The Role of Green Spaces in Enhancing Campus Life 35
5.5. Implementation 37
Conclusion 38
References 39

Introduction

This toolkit is designed to support higher education institutions (HEIs) in Georgia in enhancing student services and adopting sustainable campus practices. The course empowers universities to foster student well-being, success, and environmental sustainability. By providing strategic guidance and practical tools, this course enables HEIs to improve both student support systems and campus operations, fostering long-term growth, innovation, and community engagement.

The aim of the toolkit is to provide resources, strategies, and guidance to Higher Education Institutions (HEIs) for enhancing student services and adopting sustainable practices, while strengthening their operational capacities in key areas such as:

- Student Well-being and Success: Promoting mental health, career development, and personal growth.
- Diversity and Inclusion: Creating inclusive environments that ensure equal opportunities for all students.
- Industry Partnerships: Developing collaborations that align educational goals with workforce needs and foster career readiness.
- Digital Transformation: Leveraging technology to improve accessibility and efficiency in student services.
- Sustainable Campus Practices: Implementing waste reduction, energy efficiency, and green initiatives across campus operations.

The first unit explores the crucial role that Higher Education Institutions (HEIs) play in driving sustainable growth. It highlights the importance of integrating sustainability into university operations, research, and educational programs. The unit also introduces the RiHEI initiative, which aims to foster sustainability in higher education by providing frameworks and strategies for HEIs to engage in sustainable practices that benefit both the institutions and their communities.

The second unit focuses on the evolution of student services in higher education, with a particular emphasis on student well-being, career development, and personal growth. It discusses the importance of mental health support and strategies for improving student success, while also addressing the critical need for diversity, equity, and inclusion. The unit explores best practices and strategies for ensuring that student services are inclusive and accessible to all students, including those from marginalized groups.

The third unit delves into successful models of collaboration between universities and industries, including internships, research partnerships, and innovation hubs. It highlights how these partnerships can enhance students' employability, provide real-world industry insights, and foster sustainable practices.

The fourth unit explores the impact of technology on student services, focusing on how digital tools can improve accessibility, streamline administrative processes, and enhance decision-making. It covers various technological innovations such as e-mentorship, personalized learning platforms, and data analytics. The unit also discusses the potential of virtual student communities and peer support systems in fostering a more connected and supportive campus environment.

The last unit addresses the growing need for sustainability in university campuses. It covers global efforts and strategies for promoting green practices on campuses, including waste reduction, energy efficiency, and biodiversity preservation. The unit explores the implementation of circular economy principles, renewable energy initiatives, and best practices in waste management. It also highlights the role of green spaces in improving campus life and fostering environmental stewardship, while showcasing case studies of universities leading in sustainability efforts.

By attending the course, participants will:

- Understand the significance of student services and sustainability in higher education and how they contribute to institutional growth.
- Identify key strategies for enhancing student well-being, career development, and inclusivity in student services.
- Develop effective partnerships with industry stakeholders to promote career readiness and sustainable campus practices.
- Utilize digital tools and platforms to improve the accessibility and efficiency of student services.
- Implement strategies to green university campuses, incorporating waste reduction, energy efficiency, and biodiversity conservation into campus operations.

Unit 1. Sustainable HEIs

Higher education institutions (HEIs) play a fundamental role in shaping the future of societies, not only as centres of knowledge and innovation, but also as drivers of sustainable development (Cembranel et al., 2024). Beyond the academic role, HEIs significantly impact social, environmental and economic dimensions through education, research and community engagement (Findler et al., 2019). HEIs are key contributors in the modern world, where tackling issues like social inequality, climate change, and technological advancement is essential. They have a distinct capacity to develop informed, talented, and responsible citizens while supporting sustainable practices in their operations and surrounding communities (Chankseliani et al., 2021). The RiHEI initiative embodies this dual mission. RiHEI aims to increase student success and well-being while advancing sustainability by modernizing student services and greening university campuses. The initiative focuses on integrating industry-based career guidance, strengthening inclusiveness, and using digital technologies to meet the diverse needs of students. At the same time, it aligns campus operations with sustainability goals and includes waste reduction, energy efficiency, and biodiversity projects. These efforts resonate with the principles of the new European Bauhaus, with its emphasis on sustainability, aesthetics, and inclusivity, and contribute directly to global frameworks such as the United Nations Sustainable Development Goals (SDGs) (Katikas and Sotiriou, 2023). RiHEI addresses the interconnected challenges of student support and environmental stewardship through its holistic approach. Aligned with Sustainable Development Goals such as quality education (SDG 4), gender equality (SDG 5), and climate action (SDG 13), the plan equips Georgian universities to become leaders in fostering sustainable growth. This dual focus ensures that HEIs not only prepare students for the challenges of the future, but also act as examples of sustainability, creating resilient and inclusive environments that inspire wider social change. To effectively fulfill their dual mission, HEIs must integrate student support and sustainability into their core operations. This synergy not only enhances academic and personal outcomes for students but also advances broader institutional goals. By addressing these interconnected priorities, initiatives like RiHEI demonstrate how HEIs can simultaneously empower students and lead the way in sustainable development.

Student services play a critical role in supporting students' academic success, personal development, and overall well-being (Ling et al., 2022). By enhancing these services, HEIs can better address the diverse needs of their student populations, particularly those from marginalized or at-risk groups, including students from rural or remote areas. This initiative emphasizes the integration of industry-driven career guidance, personalized support systems, and digital tools to ensure students are equipped with the skills and resources they need to succeed in both their studies and future careers (Stone, 2022). In parallel, the greening of

university campuses aligns with global sustainability goals and the New European Bauhaus principles, which advocate for environmentally sustainable, socially inclusive, and aesthetically appealing spaces. By adopting greener practices, HEIs can significantly reduce their environmental footprint, promote sustainable behaviors among students and staff, and create healthier campus environments that foster a connection to nature. This dual focus on student services and campus sustainability ensures that HEIs not only prepare students for the future but also lead by example in promoting responsible, sustainable growth (Ribeiro et al., 2021).

Through this initiative, participating institutions will gain the tools and knowledge needed to modernize their student services, enhance student support mechanisms, and implement green initiatives on campus. These efforts are designed to build more resilient, inclusive, and environmentally responsible educational environments, ensuring that HEIs in Georgia and beyond can meet the challenges of the 21st century (Hayles, 2019; Popowska, 2024).

HEIs play a crucial role in nurturing student development and shaping sustainable practices within their campuses. In this context, the RiHEI initiative focuses on modernizing student services and promoting green campus initiatives by embedding elements of industry-driven career guidance, inclusivity for at-risk groups, and sustainable campus transformation. These efforts are aligned with the New European Bauhaus principles, which emphasize sustainability, aesthetics, and inclusivity in campus development.

1.1 The Role of Higher Education Institutions (HEIs) in Sustainable Growth

HEIs are the cornerstone of knowledge production and the preparation of people who will be both leaders and citizens in tomorrow's society. Outside of academic teaching, their capacity to drive societal impact and contribute to change management, innovation and sustainable development is crucial. HEIs shape the social, environmental and economic conditions in which societies live through their work with education, research and community engagement.

HEIs can contribute to sustainable development through:

- **Integration into Education and Skill Development:** HEIs impart education in various disciplines, incorporating sustainability principles as well as social responsibility within standardized syllabi. In this way, they allow students to develop a team of professionals who will be responsible for solving sustainability problems in varied professional areas such as engineering, architecture, business and social sciences.
- **Research and innovation:** Universities are research centers of excellence that discover breakthroughs. HEIs leads in research on renewable energy, climate change mitigation, sustainable agriculture and waste management which has lead to development of sustainable technologies and solutions addressing specific environmental challenges.

- **Community Leadership and Engagement**: When it comes to leadership around sustainability, HEIs are often the anchors of their communities. Community outreach programs of many universities in local government, quality of business and civic life are also springboards for sustainable regional development.
- **Sustainable Operations**: HEIs are large consumers of resources such as energy, water and materials. Adopting sustainable campus operations results in universities reducing or eliminating their environmental footprint, serving as an example of responsible resource consumption for their student and staff populations, and making them more aware of sustainability issues. Initiatives to create green campuses enrich the sustainability of neighborhoods over an extended period.

Therefore, HEIs significantly contribute to the transition to sustainable societies. This makes them key stakeholders in addressing the environmental, social and economic challenges of the present century so that they can embed sustainability in education, research and operations.

1.2 Overview of the RiHEI Initiative

The RiHEI project aims to enhance student services with a modern twist influenced with sustainability message at all university-based campuses. It aims to create stronger, more inclusive learning environments and respond to global issues of climate change, social equity, and the new technologies driving industry and labor markets.

The **RiHEI project** has several main objectives:

1. **Enhancing Student Services:** By adding multiple components, such as digital tools, personalization, and collaboration with industry, it attempts to make the student services better. The services address the academic and career readiness needs of all students, particularly those who are historically marginalized or at high risk of not completing postsecondary education, including rural or remote students. It provides students with individualised career guidance, mentors and networks so that they are prepared to negotiate the more complex and competitive global labour market.
2. **Greening University Campuses :** A central aspect of the wider RiHEI project is to work towards sustainability through greening university campuses. This means implementing solutions in waste, energy, biodiversity, and renewable energy. Sustainable practices reduce the environmental footprint of HEIs, help cultivate a culture of sustainability, and improve student and staff well-being by only using healthier products.
3. **Industry Collaboration and Skill Development:** It promotes collaboration between universities and industry to link academic programs with market demands. Students

benefit from participating in strategic partnerships that allow them to gain real-world experience and skills that are directly translatable to their respective careers and subsequently enhance career opportunities. In addition, cooperation with industry helps to implement academic knowledge in commercial applications, thereby promoting sustainable development.

4. **Inclusivity and diversity:** RiHEI creates environments that are fostered in the cradle of respect, where students from all walks of life have equal opportunities to shine. It corrects inequalities towards education and resources, to make sure students of all backgrounds (most notably underrepresented or disadvantaged ones) get the opportunities they deserve. Digital tools help with creating tailor-made types of learning materials and assisting rural or remote students.

RiHEI funded by the European Commission through Erasmus+, promoting transnational cooperation among regions in Europe. In line with the values of the New European Bauhaus (NEB), which focuses on sustainability, inclusivity and aesthetics, RiHEI construction cost helps to simultaneously promote excellent academic standing alongside social and environmental responsibility leadership of the HEIs.

1.3 Addressing the Global Sustainability Agenda Through HEIs

Education is the means of implementing the global sustainability agenda for sustainable development, as articulated in frameworks such as the United Nations Sustainable Development Goals (SDGs). The attainment of these goals depends largely on the critical contributions that HEIs make to developing the knowledge, skills and values required for sustainable societies. Here, the specific SDGs such as those around quality education (SDG 4), gender equality (SDG 5) and climate action (SDG 13) resonate particularly strongly with the overarching mission of HEIs varied forms.

HEIs and the SDGs:

SDG 4: Quality Education — Providing affordable and quality education that trains people in modern world demands is the best way Universities can contribute to SDG 4. With projects such as RiHEI, universities can be sure that every student, regardless of background, may receive the kind of education which prepares them for sustainable futures.

SDG 5: Gender Equality — Promoting inclusive learning environments and equal rights in prevailing male-dominated areas such as Science, Technology, Engineering, Arts and Mathematics (STEAM), and this allows for raising gender barriers. Programs like Girls-go-circular works on making sure there is a balance of male and female in the STEM fields (Science, Technology, Engineering and Mathematics).

SDG 13: Climate Action— HEIs are central to efforts to address climate change by conducting research and innovation on new sustainable practices. Universities, by reducing the carbon footprints and advocating for renewable energy sources, as well as educating future change-makers, are core drivers of an international climate-action movement.

SDG 9: Industry, Innovation and Infrastructure- The industry-university collaboration for innovation leads to good infrastructure for sustainability. Research at university level helps to create technology (from environmental energy technologies through waste treatment up to reduction of resources consumption) by receiving the last hitsertys it is developing.

By initiatives such as RiHEI, the HEIs are not only educating next generation of leaders but also are acting as an incubator for sustainable innovation and inclusive growth. They are essential worldwide if we are going to solve the environmental and social injustice in the world and bequeath to future generations a world for life worth living, where everybody has some access to opportunities.

Unit 2. Enhancing Student Services

The importance of student services in enhancing academic success, personal development, and well-being has been acknowledged by HEIs for many years. In a rapidly changing global high education environment, the developments in standards of student services had gained much traction (Gallagher, 2022). These services become not only pillars of academic support for students, but also mechanisms that provide psychological, career, and social support so that students are prepared not only for college life, but also for life after graduation (Bowden et al., 2021).

Universities worldwide are adopting innovative strategies to enhance student services. For example, the University of Melbourne's[1] Student Wellness Integration Program combines mental health support with career services, offering students holistic assistance through a centralized model. This program, replicated across Australian institutions, has demonstrated scalability and measurable improvements in student outcomes.

This initiative will drive real change in student services by driving digital innovation that is timely, promotes inclusiveness, and recognizes the importance of strong industry partnerships to ensure your HEIs remain relevant. remain and are able to respond to a diverse range of students.

2.1 The Evolution of Student Services in Higher Education

The nature and delivery of student services in higher education have changed considerably over the last few decades. In the beginning, these services were mainly confined to administrative tasks such as admissions, financial aid, and low-level academic advising. Accordingly, when universities themselves became more student-centered, the range of supported services expanded to a wider range of interventions aimed at addressing students' overall academic, social, and personal emotional needs(Dey and Cruzvergara, 2014; Morgan, 2012).

Historical Development: In previous years, student services were generally considered a set of fringe support functions that performed housekeeping activities for students, such as managing residence/halls of residence, scholarships. These services were often separated from full academic life and used mainly for administration (Buckley, 2023).

Shifts in Focus: In the mid-20th century, educators slowly began to realize that supporting students with more than just academics would create a well-rounded and successful student (Lingenfelter, 2018). The increasing professionalization of student affairs placed value on comprehensive services promoting mental health, career and personal development. Over this period, counseling programs blossomed, career services rapidly expanded and the student life & activities mentality thrived.

---

[1] https://www.unimelb.edu.au/newsroom/news/2020/october/shining-a-spotlight-on-student-health-and-wellbeing

Modernization in the 21st Century: The 21st century introduces a new set of problems to HEIs where not only is our student populations diverging on an unprecedented scale, mostly non-traditional and from diverse backgrounds, and expanding rapidly. Universities have to change to serve the different needs of students from other international, student disability, and underprivileged socio-economic groups. Moreover, as the adoption of digital tools has increased, student services are now changing, and online advising, virtual career counseling, and e-learning support are expanding (Rotar, 2022).

Future Directions: Student services are becoming a larger part of the educational ecosystem with the march of HEIs. Student services that help support learning and well-being are naturally delivered with a focus on inclusiveness, personalized learning and student success in the midst of an increasingly challenging world (McNair et al., 2022).

It is important to recognize these features, and seeks to support Georgian universities in advancing their student services online as well as developing assistance programmes for disadvantageous students. The point of this kind of enhancement is that HEIs are not just training our students how to pass their academic courses, but also for the greater personal and professional development.

2.2 The Importance of Student Well-Being and Success

Student well-being has become a central focus for universities globally, as research increasingly highlights its connection to academic performance. Well-being encompasses factors such as mental and physical health, social connectedness, and career readiness, and when prioritized, students are more likely to succeed academically and transition smoothly into their professional lives (Wijnia, 2021). Supporting well-being fosters not only academic success but also personal development, equipping students with essential life skills like emotional intelligence and resilience. Universities that provide comprehensive support systems ranging from counseling and mentorship to peer support enhance social connectedness and a sense of belonging, crucial for overall well-being (Pointon-Haas et al., 2024). Georgia State University's[2] implementation of a predictive analytics system has revolutionized how it supports students. By identifying at-risk individuals and proactively providing targeted resources, the university increased retention rates by 20% over five years. This data-driven approach highlights the potential of technology to address diverse student needs effectively.

Career readiness is another vital aspect of student well-being, as institutions prepare students for the workforce through services like career counseling, internships, and skill development. The RiHEI initiative strengthens these areas by enhancing psychological support services, improving career development opportunities, and fostering an inclusive campus environment that prioritizes diversity, equity, and inclusion (DEI). It aims to enhance psychological support

[2] https://www.insidehighered.com/digital-learning/article/2017/07/19/georgia-state-improves-student-outcomes-data

by offering expanded counseling services, digital mental health resources, and targeted support for marginalized students. Additionally, RiHEI focuses on aligning career development services with industry needs, offering mentorship and tailored support to disadvantaged students. DEI efforts are further emphasized through services that ensure equal access to education and career opportunities, particularly for underrepresented communities. By integrating these elements, a holistic approach to student well-being could be formed, ensuring that all students have the resources they need to thrive academically, personally, and professionally.

2.2.1 Psychological Support Services

Mental health is a major issue in HEIs globally by many students facing higher stress, anxiety, depression and other mental health issues. Academic performance pressures together with innated, social and interpersonal challenges often permeate into students' overall well-being (Singh and Kumar, 2024). In response to this need, universities have designed elaborate mental health services with the objective of ensuring them emotional wellness and resilience.

- **Counseling and Therapy:** University counseling services offer students the ability to seek out mental health professionals for both short-term and long-term therapy. From academic stress to personal trauma, these services function as an outlet for students who need someone to listen.
- **Crisis Intervention:** With crisis intervention, many universities provide 24/7 services for students who may need some help during an emergency. These services are essential for students in the throes of severe mental health crises, such as suicidal thoughts or overwhelming emotional anguish.
- **Workshops & Support Groups:** Organize workshops related to stress management, mindfulness, and coping strategies, besides one-to-one counseling. There are also support groups for specific populations, including international students and students with disabilities.
- **Digital Mental Health Resources:** The continued expansion of the Internet has seen an increase in online mental health resources such as teletherapy, self-help modules, and robust programs available at many universities. Digital resources can benefit students in more remote or rural areas who cannot access these services in person.

In this regard, the on-campus counselling could be improved by incorporating digital mental health tools and increasing of professional counselors;attending to the specific needs of disadvantaged student populations. These strategies work to foster healthier, more supportive spaces that will ultimately support student success and well-being.

2.2.2 Career Development and Personal Growth

The world of work is the primary endpoint for higher education, and universities hold the key to ensuring students succeed in their careers. In addition to academic knowledge, students need practical skills and industry connections to smooth the transition from university to the workplace with guidance tailored specifically for them (Singha et al., 2024). Universities that invest in career development services are prepared to graduate students ready to meet the needs of the workforce, increase student success, and play an important role in the economy.

- **Career Coaching and Counseling:** Most universities offer career counseling, where students can get advice on career paths, job search strategies, and such as professional development. These services could comprise resume-training workshops, interview tips, and job placement support.
- **Internships and Industry Partnerships:** Providing students with real-world experience is key to career readiness. Universities with strong industry partnerships offer students internships, co-op programs, and job shadowing opportunities that allow them to gain hands-on experience and build professional networks while in school.
- **Skill Development**: In addition to technical knowledge, employers increasingly seek candidates with soft skills such as communication, teamwork, and problem-solving. Universities that integrate these skills into their curricula and offer leadership development programs help students cultivate the competencies necessary for professional success.
- **Alumni Networks and Mentorship Programs:** The involvement of alumni in an advisory capacity as mentors and career coaches facilitates significant advancement in students' professional development. Most universities offer graduate wrestling mentorship where students are mentored by experts in their respective fields.

RiHEI initiatives try to relate with labour market demands by providing industry-specific career development services that would strengthen their work readiness in practice through training and mentoring programs. Additionally, it will provide employment counseling and career development for students from marginalized backgrounds in order to promote equal access to professional opportunities.

2.3 Diversity, Equity, and Inclusion in Student Services

In recent years, as universities continue to strive to provide an environment where all students can feel at home and empowered to succeed, diversity, equity and inclusion (DEI) in student services has gained importance. DEI's initiatives acknowledge that students enter the institution with unique lived experiences and are disproportionately affected by conditions that create barriers to success (Darling and West, 2024).

- **Support for Marginalized Communities**: Appropriate services exist for students who are members of underrepresented or marginalized communities (including but not limited to students of color, LGBTQ+ students, students with physical and learning

disabilities), and first-generation users. These services include mentoring, advocacy, and community building, all targeting segments.

- **Bias Prevention and Non-Discrimination**: Many universities have established offices of diversity or inclusion that work to prevent discrimination and promote a culture of respect and equity on campus. These offices offer training programs on unconscious bias, cultural competency, and anti-discrimination practices.
- **Inclusive Curriculum and Pedagogy:** To promote equity in education, universities are increasingly incorporating inclusive pedagogical practices and curricula that reflect diverse perspectives(Stentiford and Koutsouris, 2021). This helps ensure that all students see themselves represented in their academic work and feel valued in the learning process.
- **Accessibility Services:** In line with DEI principles, universities offer a range of services designed to ensure that students with disabilities have equal access to educational opportunities. This includes accommodations such as extended time for exams, assistive technologies, and accessible learning environments.

The importance of diversity and inclusion can be implemented in student service by promoting services that ensure equal access to education and career development for all students, particularly those from rural or disadvantaged backgrounds. By fostering a culture of inclusivity, the universities aim to create a university environment where all students can thrive.

2.3.1. Strategies for ensuring inclusiveness in EU

In order to ensure social groups at risk inclusion and support in higher education EU's Inclusion Strategy could be implemented. This strategies emphasizes the need to support learners facing various difficulties, such as cultural, economic, social, disability, and geographic challenges. In 2020 and 2021, the Commission adopted five strategies to create the conditions for everyone to live, thrive and lead regardless of differences based on gender, racial or ethnic origin, religion or belief, disability, age or sexual orientation.

An example of these strategies is The Strategy for the Rights of Persons with Disabilities 2021-2030 aims to improve the lives of people with disabilities and ensure that they can enjoy their rights and participate fully in society and in the economy on an equal basis with others. Under the strategy, a Disability Employment Package was adopted in 2022. As only half of 42.8 million persons with disabilities of working age in the EU are employed, such initiatives are providing guidance to employers and public authorities, while helping more people with disabilities access the labour market(European Commission. Directorate General for Employment, Social Affairs and Inclusion., 2021). several EU rules have also been adopted to make the EU more accessible for persons with disabilities, including:

- European Accessibility Act, covering products and services
- Web Accessibility Directive

Other initiatives include the European Disability Card and the European Parking Card for persons with disabilities, recommendations on accessible, supported housing for persons with disabilities, and the framework for social services of excellence for persons with disabilities (expected in 2024)

2.3.2. Strategies for Gender Equity in EU

Another important issue is gender balance which can be addressed through EU initiatives for gender-balanced in STEAM such as Girls-go-circular and Supernova (from the EIT) is an other initiative for the inclusiveness of the HEI. These initiatives will bring young women closer to enterprising and sustainability while boosting their participation in STEAM.

The Girls Go Circular project[3] : Girls Go Circular programme is part of the EIT Community efforts to close gender gaps and empower women in European entrepreneurship and innovation. The EIT Community focuses on gender mainstreaming, and is home to a several specialised women entrepreneurship and leadership programmes . These include:

- Supernovas, offering support to women at all levels of business creation, from those trying to start a business to women who want to be venture investors to those seeking to improve their leadership skills.
- Empowering Women in Agrifood is a project that promotes female entrepreneurship in the agrifood sector and boosts the amount of women in leadership positions.
- Women Entrepreneurship Bootcamp a programme for new health sector businesses led by women, offering business and product trainings, mentoring, and networking.
- Strada is a leadership development programme for women who want to become leaders in the manufacturing sector
- The European Prize for Women Innovators (in association with the European Innovation Council) is a prestigious award celebrating and promoting trailblazing women. Most recently, The EIT was awarded the EU Agencies Network (EUAN) Diversity & Inclusion Award for its work in powering outstanding women innovators and entrepreneurs through the EIT Women Leadership Award.

Women Entrepreneurship (Supernovas)[4]: Supernovas articulates a support system for women to enter and scale positions in the ecosystem, while at the same time, opening up the scope of roles that need more women.

SUPERA project: Despite a long history of scientific achievements, women remain acutely under-represented in scientific research and academia. By promoting the use of Gender

[3] See https://eit-girlsgocircular.eu/

[4] See https://eit.europa.eu/community-activities/women-entrepreneurship-supernovas

Equality Plans, the EU-funded SUPERA project aimed to address the inequalities, stereotypes and discrimination that contribute to this shortfall. As a result, several institutions have already started to close their gender gap (Krizsán et al., 2019). SUPERA's GEPs have already had a major impact at several academic and research institutions. For example, the project's guidelines for gender-sensitive communication have been adopted as best practices by the European Institute for Gender Equality and included in the Gender Equality in Academia and Research tool, which is often referred to as a source of guidance with good practices for setting up and implementing Gender Equality Plans.

Examples of initiatives that promoted sharing of good practice and awareness raising are many. The European Union has included support for these activities in both its programme for research and in the Erasmus Programme. For example, the SAGE Project in the research programme has used the experiences from partners from Ireland to Turkey in order to develop a framework to develop gender equality plans[5]. Likewise, the HE4U2 project funded by the Erasmus Programme has developed tools to further cultural diversity in higher education[6]. Such European initiatives are important as they create a community of practitioners that share good practice across the continent with the potential to have a very wide international impact. At the national level, similar networks of practitioners exist in a number of countries(Claeys-Kulik et al., 2019).

[5] See http://www.sage-growingequality.eu/web/assets/media/sage_booklet.pdf

[6] See http://he4u2.eucen.eu/

Unit 3. Strategic Industry Partnerships

Researchers have long understood the advantages of collaboration between universities and industry, not only to ensure that academic programs are closely aligned with what the job market demands but also to enhance innovation. (Dollinger et al., 2018). Strategic industrial partners has become also key in training students to acquiring practical experience and real-world problems integrated into the academia. By partnering with key industry players, these initiatives do more than connect academic knowledge to practical skills; they also cultivate employability and drive research and development into the country.

3.1 Models of Successful University-Industry Collaborations

There have been several models developed over the years to create productive university-industry partnerships. These provide models that allow for knowledge, resource and skill exchanges between students and industries alike. The most conventional models are:

3.1.1 Internships and 1 Co-op Programs

Co-op programs and internships have long been the best way to get students to work directly in fields related to their fields of study. They also provide students with hands-on experience, networking, and industries to gain a new perspective while potentially scouting future employees. The Co-op approach typically combines work experience with academic studies so that students are able to apply theoretical learning in practical settings.

3.1.2 Research Collaborations

University-industry research partnerships center on collaborative projects in which institutions and private sector partners combine forces, experience, and infrastructure. These efforts are often funded by industry looking to solve tangible technological or business problems, while the universities get access to more resources and real-world needs for their research. A collaboration between materials scientists can lead to the development of new materials, a pharmaceutical collaboration leads to bigger and better drugs, or an energy group starts work on new sustainable solutions.

3.1.3 Industry-Sponsored Degree Programs

Some universities and industries collaborate to design degree programs tailored to the needs of specific sectors. These industry-sponsored programs align curricula with market demands, ensuring that graduates possess the skills and knowledge that employers seek. This model is particularly prevalent in fields like engineering, IT, and business.

3.1.4 Innovation Hubs and Incubators

Innovation hubs, often hosted by universities, provide a space for students, faculty, and industry partners to work on innovative solutions to contemporary challenges. These hubs often focus on emerging industries like renewable energy, biotechnology, and artificial intelligence. Universities offer research expertise and facilities, while industries provide

funding, mentorship, and market access. Incubators within universities also help foster start-ups, allowing students and researchers to develop entrepreneurial ventures.

3.2 Career and Skill Guidance via Strategic Industry Partnerships in Europe

In the contemporary educational landscape, the convergence of academic experiences with industrial practice has become increasingly paramount.

3.2.1. EIT Manufacturing's Teaching Factory concept

The Teaching Factory paradigm aims to align manufacturing teaching and training to the needs of modern industrial practice (Chryssolouris et al., 2016). EIT Manufacturing is a public-private partnership, co-funded by the European Union and established in 2019. EIT Manufacturing brings together a growing network of top-tier industrial partners, leading academic and research institutions from across the region and **innovative startups, scaleups and SMEs**. A Teaching Factory is a collaboration space where practitioners bring experience from the factory to teach students, while students and faculty bring knowledge from the classroom to teach practitioners. This collaboration is supported with a web conferencing platform and is an ongoing process, with regular sessions and continuous interaction between the factory and the classroom; Conclusively EIT Manufacturing connects and integrates the areas of education, innovation, and business creation.

The EIT Manufacturing Teaching Factory concept has been successfully implemented at the University of Stuttgart in partnership with Bosch and Siemens. Through this collaboration, students work on live industry challenges, applying theoretical knowledge to real-world problems. This approach not only bridges the gap between academia and industry but also prepares students for competitive job markets[7].

Ultimately, EIT Manufacturing strives to accelerate faster innovation with the potential to improve everyday life globally, help meet Europe's ambitious climate goals, and ensure that its workforce is ready for tomorrow's challenges.

These three strategic objectives are:

1. **Put people at the centre of manufacturing**: Focus on creating a highly skilled workforce through reskilling and job creation. Activities like the learning platform Skills.move and EIT Deep Tech Talent Initiative aim to enhance education and innovation in higher education institutions.

2. **Accelerate green manufacturing:** Commitment to significantly reduce climate impact by promoting closed-loop manufacturing, lowering emissions and supporting the Circular Economy. This aligns with the European Green Deal, Net-Zero Industry Act and Critical Raw Materials Act.

[7] https://www.eitmanufacturing.eu/

3. Foster sovereignty and competitiveness: Enhancing the agility, flexibility and resilience of the manufacturing industry through both disruptive and incremental innovations. Large companies, startups and SMEs will be supported, with a focus on innovation in EIT Regional Innovation Scheme (RIS)-eligible regions, promoting cohesion and industrial investment attractiveness amid de-globalisation and supply chain reshaping.

While EIT Manufacturing aims to achieve its Strategic Objectives, the organisation utilises KPIs that are aligned with EIT core key performance indicators (KPIs) to measure the impact of its initiatives.

The Teaching Factory bridges the gap between theoretical knowledge and practical application by involving students in solving real-world industry problems. In Georgia, adapting this concept could strengthen partnerships between academia and industries, particularly in sectors like agriculture, wine production, and light manufacturing.

Practical Application in Georgia:

- **Localized Industry Collaboration**: Establish a Teaching Factory model where students work with Georgian wine producers to develop efficient bottling or export logistics.
- **Curriculum Enhancement**: Universities could integrate this model into engineering or business programs to create hands-on learning opportunities.
- **Case Study**: An engineering department collaborates with a Georgian agricultural machinery manufacturer to optimize product design, leading to better employability for graduates.

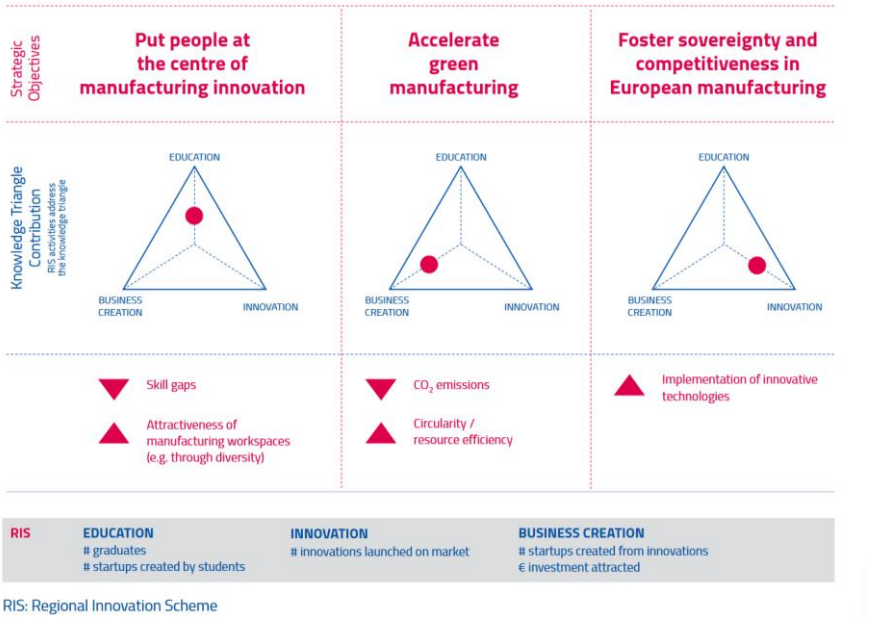


Figure 1. EIT Manufacturing Impact

3.2.2. Horizon Europe

Horizon Europe, the European Union's flagship funding program for research and innovation, is an essential driver of strategic partnerships between universities and industries. Through this program, institutions gain access to funding for cutting-edge research, fostering innovation that addresses global challenges such as climate change and digital transformation. By participating in Horizon Europe initiatives, universities not only enhance their research capacity but also create opportunities for students to engage in transformative projects that align with sustainable development goals.

Under Horizon Europe, TU Delft[8] collaborated with Shell to develop innovative renewable energy systems. This partnership provided students with hands-on opportunities to contribute to sustainable energy solutions while gaining exposure to cutting-edge research. Such initiatives showcase how universities can align academic objectives with global challenges through strategic partnerships.

Horizon Europe provides funding for research and innovation projects addressing global challenges. Georgian universities could leverage this framework to enhance their research capabilities and develop solutions to local issues.

Practical Application in Georgia:

- **Targeted Funding Applications**: Encourage Georgian universities to apply for Horizon Europe grants focusing on renewable energy or sustainable agriculture.
- **Collaborative Research Projects**: Establish partnerships with EU universities to co-develop proposals that align with both Georgian needs and Horizon Europe's priorities.
- **Case Example**: A joint research project between a Georgian university and an EU institution develops sustainable irrigation systems, addressing local agricultural challenges while promoting innovation.

3.3 Case Studies of Industry-HEI Partnerships in Europe

Europe has a long history of collaboration between universities and industries, with many institutions serving as the examples of comprehensive integration of academia & industry. The collaborations which have benefited regional and national economies, accelerated innovation and created the workforce of the future.

[8] https://sciencebusiness.net/news/75586/Delft-University-of-Technology-and-Shell-seal-a-preferred-partnership-agreement

3.3.1 Success Stories: Collaboration in Innovation Hubs

Case Study 1[9]: ETH Zurich and the Industry Partners in AI Research Based in Switzerland, ETH Zurich is one of the leading universities that has a strong alliance with industry giants like Google, IBM, Siemens etc. The key thrust areas for these collaborations are AI and machine learning research. This partnership provides students use of leading-edge research labs and industry mentorship. ETH Zurich also provides internship and co-op opportunities in these companies that help sculpt tomorrow's leaders in AI while pushing forward on to the brink of technological advancements. This has laid the foundation for numerous patents and advancements that have been commercialized globally, and advanced both academia and industry.

Case Study 2[10]: TU Delft and the Dutch Wind Energy Consortium In a similar vein, in the Netherlands, the Technical University of Delft (TU Delft) has embarked on a collaboration with a consortium of wind energy experts to study sustainable solutions for wind energy. As a partnership, this has contributed to the next generation of offshore wind technology with hands on involvement from students on research and development projects. The partnership has helped create jobs for graduates and establish the Netherlands as a leader in sustainable energy. When students are studying to be engineers and environmental scientists, they have the opportunity to do practical work in wind farms enabling them a great start towards their career development while driving the renewable energy revolution forward.

3.3.2 Challenges in University-Industry Engagement

There are many success stories, but university-industry collaboration also faces obstacles that may limit their ability to achieve results. Table 1 shows the key issues of project-level collaboration between academia and industry for research and innovation work. While academia-industry partnerships have great potential as enablers of knowledge advancement and technology development, a number of barriers may prevent their success. Two of the biggest challenges point to a misalignment of goals: universities are focused on research, thus prioritizing long-term theoretical plans over immediate results, and industries favor a tangible product that can be easily incorporated into final projects or strategies. Also, disputes over IP rights for joint research results could further escalate into global cyber security negotiations. The smaller a university the wider its resource constraints and the necessity of attracting partners from industry; however, this is hindered by the various bureaucratic barriers present in operational processes which differ between universities and industries.

Table 1. Key Challenges in University-Industry Engagement

Challenge	Description

[9] https://ai.ethz.ch/industry/corporatepartnership.html

[10] https://www.tudelft.nl/en/2023/3me/news/collaborative-wind-turbines-for-the-most-sustainable-future

Misalignment of Goals	Universities focus on long-term research, while industries seek immediate practical solutions, leading to potential tension.
Intellectual Property (IP) Conflicts	Determining how to manage intellectual property rights from joint research can be a major hurdle in collaborations.
Resource Constraints	Smaller universities may lack the infrastructure or funding to build strong partnerships with industries.
Bureaucratic Barriers	Differences in administrative processes between universities (rigid) and industries (flexible) can lead to operational challenges.

3.4 Metrics for Measuring the Success of University-Industry Collaborations

To ensure that university-industry partnerships are effective and beneficial for both parties, it is essential to establish clear metrics for success. Table 2 indicate the essential success metrics and their respective indicators, which can help universities and industries evaluate and optimize their collaborative efforts.

Table 2. key metrics for measuring the success of university-industry collaborations

Metric	Description	Indicators/Measures
Student Employability	Measures the success of students participating in industry-sponsored programs and internships.	• Job placements of graduates • Salaries • Career advancement
Research Output and Innovation	Assesses the impact of joint research projects between the university and industry, including the commercialization of research outcomes.	• Number of patents • Publications • Innovations • Commercialized outcomes
Revenue Generation	Evaluates the financial benefits derived from partnerships, including research funding and income from IP licenses and collaborative projects.	• Research funding • Revenue from IP licenses • Income from projects
Student and Industry Satisfaction	Gathers feedback from students and industry partners on their experiences and the overall success of the collaboration through surveys and interviews.	• Satisfaction rates (students & industry) • Feedback on strengths and weaknesses

3.4.1 Integrating Leadership Training and Innovation Ecosystems

To maximize the benefits of strategic partnerships, it is critical to combine insights from proven sustainability leadership programs and innovation ecosystems. Leadership training initiatives, such as sustainability training courses for university administrators, provide practical frameworks for incorporating sustainability into organizational policies and operations. These courses equip leaders with the tools to identify opportunities for sustainable development, streamline resource management, and foster a campus culture that prioritizes environmental stewardship. By developing a deep understanding of sustainability principles, university leaders can create transformative change that aligns with global goals such as the UN's SDGs.

In parallel, innovation ecosystems serve as powerful models for collaboration between academia, industry, and government. These ecosystems demonstrate how academic institutions can act as hubs of innovation and transform cutting-edge research into practical and sustainable solutions. Through initiatives such as startup incubators, research consortia, and technology transfer programs, universities can foster entrepreneurship and innovation while addressing critical societal challenges. Such ecosystems not only increase graduate employability, but also contribute to regional economic growth and environmental sustainability.

Using these examples, the RiHEI initiative aims to equip partner universities with the expertise and resources needed to create resilient and forward-looking institutions. These efforts will enable Georgian universities to establish themselves as leaders in both sustainability and innovation, creating a lasting impact on their communities and beyond.

Unit 4. Digital Transformation of Student Services

Higher education, like everything else in modern life, has been transformed by the digital revolution. The digitization of student services has had a profound impact on how we add value to the university experience and successful academic journeys. Technology powers personalized learning platforms, e-mentorships, virtual peer support networks and a host of other capabilities to help HEIs operate more efficiently, bolster student satisfaction and provide responsive offerings. Institutional adoption of digital capabilities within student services allows universities to serve new generations that represent an increasingly more diverse and tech-savvy student body in a post-pandemic global higher education. But moving everything online comes with its own set of challenges, from questions about data privacy and accessibility to concerns about a digital divide.

Many universities are using technology to enhance student experiences. For instance, Purdue University[11] uses an AI-driven chatbot, *Purdue Pete,* to answer over 30,000 student inquiries annually, from financial aid to academic advising. This automation reduces wait times, improves accuracy, and allows staff to focus on personalized support.

4.1 The Impact of Technology on Student Services

Technology has profoundly changed the landscape of student services in higher education. Traditionally, student services were delivered in person, requiring students to navigate various administrative offices for support. With the advent of digital tools, many of these services are now accessible online, offering students greater convenience and flexibility.

4.1.1 Enhanced Accessibility and Convenience

One of the most important benefits of digitization is that it has made student services much more accessible. Whether in or out of the classroom, distance students have access to academic advising, career counseling, mental health support, and administrative assistance through available Internet connectivity. This is particularly useful for non-traditional students who work, take part-time degree courses or live in regional and rural areas.

The University of Edinburgh[12] has a central "Student Hub" online, which brings together support in the form of academic guidance, careers services and mental health support. Students are able to make a virtual appointment, find resources, and talk to university staff all in one place so they can seek help without having to visit various different physical offices.

4.1.2 Streamlined Administrative Processes

Digital tools have revolutionized administrative processes within HEIs, making it easier for students to manage tasks like course registration, financial aid applications, and housing services. Automation of routine tasks has reduced wait times, improved accuracy, and allowed

[11] https://it.purdue.edu/newsroom/articles/230828-ivy-chatbot0live.php

[12] https://www.myed.ed.ac.uk/myed-progressive/

university staff to focus on more complex student needs. Purdue University[13] in the U.S. uses an AI-powered chatbot, "Purdue Pete," to answer student questions about financial aid, registration, and campus services. The chatbot handles thousands of queries annually, freeing up staff time for more personalized support.

4.1.3 Data-Driven Decision Making

Digital platforms enable universities to collect and analyze vast amounts of data on student behavior, academic performance, and service utilization. This data can be used to improve service delivery, identify at-risk students, and tailor support to individual needs. Predictive analytics, for example, allows universities to proactively reach out to students who may be struggling academically or personally, providing targeted interventions. Georgia State University[14] implemented an early warning system that uses predictive analytics to identify students at risk of dropping out. The system tracks academic performance, attendance, and other indicators, enabling advisors to intervene early and offer support. This approach has led to significant improvements in retention rates, particularly among first-generation and low-income students.

4.2 Personalized Learning Platforms

The personalized learning platforms have greatly evolved the way that students interact with their academic content and self-sustain their educational paths. Using technology to deliver personalized learning journeys, adaptive assessments and tailored feedback, these platforms ensure every learner gets the support they need for their individual strengths, weaknesses and learn styles.

- **Adaptive Learning Technology:** Adaptive learning platforms use algorithms to adjust the pace, content, and difficulty of lessons based on student performance. These systems help students master material at their own pace, providing additional support where needed and allowing advanced students to move ahead more quickly. Arizona State University has partnered with adaptive learning company Knewton to offer personalized learning in large introductory courses. The platform adjusts content based on student performance, offering additional exercises for those who struggle with specific concepts and allowing advanced students to skip over material they have already mastered. This has led to higher pass rates and improved student satisfaction.
- **Tailored Academic Advising:** Personalized learning platforms also provide academic advising tools that guide students through course selection, degree planning, and career preparation. These platforms use data to recommend courses, suggest study habits, and offer insights into potential career paths based on students' academic

[13] https://www.purdue.edu/retirees/newsletter/2023%20Archive/2023%20March%20Archive%20Web%20Page.html

[14] https://success.gsu.edu/approach/

performance and interests. The University of Florida[15] offers the "Pathway to Graduation" platform, which provides personalized course recommendations based on a student's major, academic history, and career goals. The system helps students stay on track for graduation while offering guidance on internships and job opportunities related to their field of study.

4.1.1 E-Mentorship and Digital Career Services

Mentorship and career services have traditionally been delivered face-to-face, but the digital transformation has expanded these offerings, making them more accessible and flexible. E-mentorship platforms and digital career services allow students to connect with industry professionals, alumni, and career coaches regardless of their location, ensuring that all students—regardless of geographical or financial barriers—can access essential career development resources.

- **E-Mentorship Platforms:** E-mentorship platforms enable students to connect with mentors who provide guidance on academic choices, career planning, and professional development. These platforms often facilitate relationships between students and alumni or industry professionals, providing valuable networking opportunities. The University of Melbourne[16] offers an e-mentorship program where students are paired with alumni mentors based on their field of study and career aspirations. The platform allows for virtual meetings, message exchanges, and progress tracking, making mentorship accessible even to students who cannot meet in person due to time or location constraints.
- **Digital Career Counseling:** Digital career counseling platforms provide students with virtual access to career advisors, job search tools, and skill development resources. These platforms often include features like resume builders, interview preparation modules, and job databases that are tailored to individual career goals. Handshake, a widely used career services platform, connects students from hundreds of universities with job opportunities, internships, and virtual career fairs. Universities like **Harvard** and **Stanford** have adopted Handshake to streamline job searches and offer virtual career counseling sessions, ensuring that students can access support remotely.
- **Challenges in E-Mentorship and Career Services:** While e-mentorship and digital career services offer flexibility, they also present challenges. Building strong personal relationships can be more difficult in virtual settings, and some students may lack the digital literacy skills needed to fully utilize these platforms. Additionally, maintaining the same level of personalized attention online as in face-to-face interactions can be challenging for mentors and career counselors.

[15] https://www.fau.edu/broward/news/advising-services-for-working-professionals/

[16] https://www.unimelb.edu.au/alumni/get-involved/volunteer/mentoring

4.1.2 Virtual Student Communities and Peer Support

As student populations become more diverse and geographically dispersed, virtual student communities and peer support networks have become essential in fostering social connection and providing emotional support. These platforms enable students to interact with peers, share experiences, and collaborate on academic or extracurricular projects, regardless of location.

Online Peer Mentorship Programs:

Online peer mentorship programs connect students with upperclassmen or recent graduates who can offer guidance on navigating academic and social life. These platforms often focus on supporting first-year students or those from underrepresented backgrounds, ensuring they feel welcomed and supported as they transition into university life. The Open University in the UK, which primarily offers distance learning, has implemented a robust peer mentorship program where new students are paired with experienced peers who offer support through virtual meetings, group chats, and forums. This has helped reduce feelings of isolation among remote learners and increased retention rates.

Virtual Study Groups and Learning Communities:

Virtual study groups and learning communities provide platforms for students to collaborate on coursework, share resources, and engage in academic discussions outside the classroom. These groups often use collaborative tools like video conferencing, shared documents, and discussion boards to foster academic engagement. Coursera, an online learning platform, offers students the ability to form virtual study groups, participate in discussion forums, and collaborate on assignments. The platform's community features help students from around the world connect with peers, making learning a more interactive and social experience.

Challenges of Virtual Communities:

While virtual communities offer flexibility and inclusivity, they also come with challenges. Some students may struggle with digital literacy or lack reliable internet access, limiting their ability to fully engage. Furthermore, building strong, meaningful relationships online can be more difficult than in person, which can hinder the development of close-knit support networks.

4.1.3. The Europass Initiative; An example of a personalized support system

The overall objective of the Europass initiative is to support educational and working mobility in Europe by making skills and qualifications transparent and easy to understand for learners, jobseekers, and employers, as well as education and training institutions (Kiss, 2018). Europass is a portfolio which consists of five documents, namely:

- The **Europass Curriculum Vitae (CV)** completed by individuals to report on their qualifications, professional experience, skills and competences;

- The **Europass Language Passport (ELP)** completed by individuals to report on their language skills;
- The **Europass Certificate Supplement (ECS)** issued by the authorities that award vocational educational and training (VET) certificates;
- The **Europass Diploma Supplement (EDS)** issued by higher education institutions to their graduates alongside their degree or diploma; and
- The **Europass Mobility Document (EMD)** completed by the relevant home and host organisations for recording any organised period of time that a person spends in another European country for the purpose of learning or training.

There are other EU online information services and tools which are partially linked to, and whose functions may overlap with, those of Europass, including:

- Online tools for the documentation of skills (such as EURES, Youthpass);
- Tools for career and learning guidance (Euroguidance);
- Tools to assist jobseekers and employers (EURES);
- Tools for recognition of skills and qualifications (ENIC/NARIC networks);
- Skills forecasting data (EU skills Panorama);
- General conceptual frameworks (European Qualifications Framework (EQF)); and
- Tools for common terminology of skills, qualifications and competences (ESCO).

Hence, Europass users can create a free profile with Europass, to record all their skills, qualifications and all their work, education and training experiences, language skills, digital skills, information on projects, volunteering experiences, and achievements which can be shared with potential employers, educational institutions, or training providers. The platform allows users to generate a personalized CV or cover letter tailored to specific job applications, making it an essential tool for job seekers navigating the European labor market.

Challenges of Digital Transformation

While the digital transformation of student services offers many benefits, universities must also contend with several challenges, including data privacy concerns, issues of accessibility, and the digital divide.

- **Data Privacy and Security:** As universities increasingly rely on digital platforms to deliver student services, concerns about data privacy and security have grown. Universities collect vast amounts of personal data, including academic records, mental health information, and financial details, making them targets for cyberattacks. Ensuring that this data is protected is essential to maintaining student trust and complying with privacy regulations like the General Data Protection Regulation (GDPR) in Europe. Several U.S. universities have experienced data breaches, where student information was compromised. To address these risks, universities must invest in robust cybersecurity measures, regular audits, and clear data privacy policies.

- **Accessibility and the Digital Divide:** Not all students have equal access to the technology needed to benefit from digital student services. Students from low-income backgrounds or rural areas may lack reliable internet access or devices, exacerbating the digital divide. Universities must ensure that digital platforms are accessible to all students, including those with disabilities, by providing alternatives or offering subsidies for necessary technology. During the COVID-19 pandemic, universities like The University of California, Berkeley provided students with loaner laptops and Wi-Fi hotspots to ensure that all students could participate in online learning and access digital student services.

Unit 5. Greening University Campuses

As global concerns over climate change, resource depletion, and environmental degradation intensify, universities are stepping up as leaders in sustainability. Greening university campuses goes beyond reducing environmental footprints; it involves fostering a culture of sustainability among students, faculty, and staff. HEIs are uniquely positioned to promote sustainable practices through education, research, and operational initiatives, serving as living laboratories for sustainability. The greening of campuses not only benefits the environment but also enhances the well-being of campus communities and their surrounding areas, creating a ripple effect that extends to local and even global levels.

Universities are uniquely positioned to lead the way in environmental sustainability. As centers of knowledge, innovation, and community engagement, HEIs can significantly impact how societies approach sustainability. Green campuses go beyond reducing environmental footprints; they foster a culture of sustainability, enhance student well-being, and serve as models for local and global communities.

Efforts to green campuses align closely with global sustainability goals, such as the UN Sustainable Development Goals (SDGs) and the New European Bauhaus principles, which emphasize sustainability, inclusivity, and aesthetics. By adopting these principles, HEIs contribute to tackling pressing issues like climate change, resource depletion, and environmental degradation while shaping future leaders in sustainability.

5.1 Global Efforts in Campus Sustainability

Universities worldwide are increasingly adopting sustainability as a core principle of campus operations, curricula, and community engagement. These efforts are aligned with global sustainability goals, including the United Nations' SDGs, and focus on areas such as energy efficiency, waste reduction, biodiversity conservation, and social inclusivity. Many universities have committed to achieving carbon neutrality, reducing water consumption, and implementing sustainable procurement policies. The global effort to green campuses is driven by the understanding that universities have the potential to shape sustainable leaders and influence broader societal changes through their initiatives.

5.1.1 Campus Sustainability Ranking Systems

To promote sustainability and encourage competition among universities, several global ranking systems have emerged that assess and compare the sustainability efforts of HEIs. These rankings provide a benchmark for universities to evaluate their environmental performance and inspire continuous improvement.

One of the most prominent sustainability ranking systems is the UI GreenMetric World University Ranking[17], established by the University of Indonesia. The GreenMetric ranks

[17] https://greenmetric.ui.ac.id/

universities based on their environmental policies, energy and climate change efforts, waste management practices, water use, transportation systems, and education and research on sustainability (Atici et al., 2021). **Key indicators that used in UI GreenMetric**:

- **Energy and Climate Change**: Initiatives related to energy efficiency, renewable energy use, and efforts to reduce carbon emissions.
- **Waste Management**: Programs for recycling, composting, and reducing landfill waste.
- **Water Conservation**: Measures taken to reduce water consumption, manage stormwater, and recycle water.
- **Sustainability Education**: The integration of sustainability topics into the curriculum and extracurricular activities.
- **Green Infrastructure**: The development of green spaces, eco-friendly buildings, and sustainable transportation systems.

Wageningen University & Research (Netherlands)[18] consistently ranks as one of the top universities for sustainability, particularly excelling in environmental sciences and agriculture through its research and education efforts. Similarly, the University of California, Davis (USA)[19] is highly recognized for its initiatives in waste reduction, energy efficiency, and water conservation, with a notable commitment to achieving carbon neutrality by 2025. The University of Nottingham (UK)[20] also ranks among the leading institutions, known for fostering sustainable campuses and promoting environmental stewardship through community outreach programs. These rankings not only motivate universities to enhance their sustainability performance but also provide a valuable framework for identifying areas of improvement, ultimately contributing to global efforts to combat climate change and promote responsible resource management.

5.1.2 The Role of HEIs in Promoting Sustainable Behaviors

HEIs have a critical role in shaping the attitudes and behaviors of students, faculty, and staff toward sustainability. By integrating sustainability into campus operations and educational programs, universities can promote environmentally responsible behaviors that extend beyond the campus into the wider community. Table 3 highlights key areas in which universities are driving sustainability efforts. It covers four main categories: integrating sustainability into education through courses and programs, promoting behavioral change through sustainable campus design, advancing research and innovation in environmental technologies, and supporting student-led sustainability initiatives. Examples from universities such as the University of British Columbia, Monash University, the University of Tokyo, and

[18] https://www.wur.nl/en/education-programmes/wageningen-university/rankings.htm

[19] https://sustainability.ucdavis.edu/goals/climate

[20] https://www.nottingham.ac.uk/news/sustainability-ranking

Harvard University showcase the variety of approaches taken to foster sustainability on campus and beyond.

Table 3 Key areas and examples of university sustainability initiatives

Category	Description	Example
Sustainability in Education	Universities influence future leaders by integrating sustainability into curricula, offering courses on environmental science, renewable energy, and green architecture across disciplines.	The University of British Columbia (UBC)[21] offers over 812 sustainability-related courses at both undergraduate and graduate levels, alongside a "Sustainability Ambassadors Program" that empowers students with leadership and learning opportunities in sustainability.
Behavioral Change through Campus Design	Sustainable campus designs encourage behaviors like walking, biking, and using green transportation. Dining initiatives promote plant-based options and reduced food waste.	Monash University[22] in Australia supports sustainable behaviors with solar panels, rainwater systems, and a pedestrian-friendly layout. The "Net Zero Initiative" targets carbon neutrality by 2030.
Sustainability Research and Innovation	Universities serve as research hubs, developing renewable energy, waste management, and sustainable agriculture technologies to address environmental challenges globally and locally.	University of Tokyo[23,24] established a Sustainability Research Center focused on climate change, renewable energy, and biodiversity, collaborating with governments and industries.
Student-Led Sustainability Initiatives	Universities support student-led sustainability initiatives, including environmental campaigns, green competitions, and clubs that empower students to implement change on campus.	Harvard University's[25,26] "Resource Efficiency Program" empowers students to reduce energy and water use in dorms, leading to substantial

[21] https://www.sustain.ubc.ca/education

[22] https://www.monash.edu/__data/assets/pdf_file/0007/2598793/City-Scan_Final-Report_Jan-2021.pdf

[23] https://utccs.u-tokyo.ac.jp/en/

[24] https://utccs.u-tokyo.ac.jp/en/overview/

[25] https://sustainable.harvard.edu/organization/college/

[26] https://sustainable.harvard.edu/data-and-sustainability-progress/2022-annual-report/

		decreases in waste and energy consumption.

5.1.3 Impact of University Campuses on Local Communities

The sustainability efforts of universities often extend beyond campus boundaries, creating positive impacts on local communities. By adopting sustainable practices and promoting environmental awareness, universities can serve as catalysts for change, encouraging local governments, businesses, and residents to adopt similar initiatives.

Table 4 shows the various ways universities extend their sustainability efforts beyond campus boundaries, positively impacting local communities. It highlights four key areas: economic impact through local partnerships and job creation, environmental stewardship through ecosystem management and conservation, public engagement and education via outreach programs, and social impact by promoting inclusivity and equity. Notable examples from universities such as the University of Vermont, Cornell University, the University of Gothenburg, and the University of Cape Town illustrate these initiatives in action.

Table 4 University Sustainability Initiatives: Impact Beyond Campus Boundaries

Category	**Description**	**Example**
Economic Impact	• Universities invest in local green infrastructure projects. • Stimulate local economies by creating jobs in construction, renewable energy, and environmental management. • Partner with local businesses to promote sustainable practices.	University of Vermont[27] partners with local farmers to source organic food for its dining services and collaborates with Burlington on renewable energy projects, benefiting the community.
Environmental Stewardship	• Manage green spaces and engage in biodiversity restoration. • Promote conservation efforts by preserving natural habitats. • Contribute to cleaner air and healthier environments.	Cornell University[28] manages a 4,300-acre campus with natural areas and forests, showcasing sustainable practices through its "Sustainable Landscapes Trail."
Public Engagement and Education	• Engage local communities through education and outreach programs. • Host workshops, public lectures, and community events focused on sustainability.	University of Gothenburg[29] offers public courses on sustainability and works with the city on initiatives like waste reduction and

[27] https://uvmdining.sodexomyway.com/explore/sustainability

[28] https://cornellbotanicgardens.org/sustainable-landscapes-trail/

[29] https://www.gu.se/en/research/sustainability-and-the-environment

	• Collaborate with schools and local governments.	renewable energy installations.
Social Impact	• Promote social inclusivity and address issues of equity and environmental justice. • Ensure marginalized communities benefit from sustainability efforts. • Focus on creating equitable and accessible spaces.	University of Cape Town (UCT)[30] integrates sustainability with social justice, partnering with NGOs to promote equitable access to water and energy for underprivileged communities.

5.2. Waste Reduction and Sustainable Campus Operations

Waste reduction is a fundamental component of sustainability in HEIs. Universities are often significant consumers of resources, generating large amounts of waste through academic activities, campus operations, student housing, and dining services. As such, implementing sustainable waste management strategies is essential for minimizing the environmental footprint of HEIs (Elsayed, 2023). By adopting policies aligned with the circular economy and best practices for waste management, universities can significantly reduce waste generation, promote recycling, and cultivate a culture of sustainability (Amaral et al., 2020).

5.2.1 Circular Economy Principles

The principles of a circular economy focus on sustainability and resource efficiency, urging universities to embrace practices that extend the lifecycle of products and materials (Suárez-Eiroa et al., 2019). Design for longevity emphasizes the importance of creating durable, repairable, and recyclable products, including campus infrastructure and equipment, ensuring they can be reused or recycled at the end of their lifecycle (Alzaydi, 2024). Additionally, reuse and repair should be prioritized over disposal; for example, furniture, computers, and laboratory equipment can be refurbished or donated to maximize their useful lives (Gobert et al., 2021). Recycling and upcycling play vital roles in waste management, with recycling ensuring that materials like paper, plastic, glass, and metals are processed for reuse, while upcycling creatively repurposes discarded materials into valuable resources (Zhao et al., 2022). To support these initiatives, sustainable procurement policies can guide universities to purchase products made from recycled or sustainable materials, prioritize local sourcing, and select vendors committed to sustainability (Leal Filho et al., 2019). Finally, organic waste management through composting food scraps and landscaping materials not only reduces reliance on chemical fertilizers but also contributes to the regeneration of natural systems (Bremaghani, 2024). Together, these principles create a framework for universities to foster a circular economy that enhances sustainability on campuses and within their communities.

[30] https://www.news.uct.ac.za/features/sustainability/2023/

5.5.2 Best Practices in Waste Management in HEIs

HEIs have made significant strides in reducing waste, promoting recycling, and enhancing sustainability across their campuses. Implementing best practices in waste management not only helps universities minimize their environmental impact but also leads to cost savings and fosters healthier, more sustainable environments for students and staff (Mohamed et al., 2020). Composting and recycling are central to sustainable waste management, as these initiatives focus on diverting organic waste from landfills while processing recyclable materials. Composting programs convert food scraps, yard waste, and other organic materials into nutrient-rich compost, which can be utilized to fertilize campus landscaping or community gardens (Dirks, 2021). For instance, the University of California, Berkeley (UC Berkeley)[31,32] has established a comprehensive composting program that collects organic waste from dining halls, cafes, and landscaping operations, aiming to achieve zero waste by 2025 and significantly reducing landfill contributions. Additionally, successful recycling programs at universities require clear signage, accessible recycling bins, and community engagement to ensure the proper sorting of materials. A notable example is Stanford University[33], which has developed a robust recycling program that diverts 65% of its waste from landfills, offering dedicated bins for various materials and promoting initiatives like "Swap It" programs to encourage students to recycle clothing and other items. Collectively, these practices exemplify how HEIs can effectively manage waste and cultivate a culture of sustainability on campus.

5.2.3 Reducing Single-Use Plastics on Campus

Single-use plastics, including disposable cups, utensils, and packaging, significantly contribute to the waste generated on university campuses (Nguyen et al., 2022). In response, many universities are adopting policies aimed at reducing or eliminating single-use plastics by promoting reusable alternatives. One effective strategy is the elimination of plastic water bottles; some universities have banned their sale and installed water refill stations to encourage the use of reusable bottles. For instance, Harvard University[34] has successfully removed the sale of single-use plastic water bottles across its campus, complementing this initiative with water refill stations and offering reusable utensils and dishware in dining services, which has led to a significant reduction in plastic waste. Additionally, universities can promote reusable alternatives by incentivizing students and staff to use their own cups, utensils, and containers. The University of Exeter in the UK[35] exemplifies this approach with its "Cup for Life" campaign, where students and staff can purchase reusable cups at a

[31] https://www.universityofcalifornia.edu/news/uc-increases-composting-efforts

[32] https://rde.stanford.edu/studenthousing/zero-waste

[33] https://sustainable.stanford.edu/operations/waste/initiatives

[34] https://sustainable.harvard.edu/

[35] https://www.exeter.ac.uk/alumnisupporters/exceptional/impact/impact-case-studies/tacklingplasticwastegiveupyourpapercups/

discounted rate. Those who use these cups enjoy discounts at campus cafes, leading to the gradual phase-out of disposable cups and a noticeable decrease in plastic waste. Through these initiatives, universities are making considerable progress in mitigating the environmental impact of single-use plastics on their campuses.

5.2.4 Case Studies: Zero-Waste Universities

Several universities have adopted zero-waste policies, aiming to divert at least 90% of their waste from landfills through recycling, composting, and reuse. These universities have become leaders in sustainability, demonstrating that achieving zero waste is possible with the right strategies and community engagement. Table 5 presents case studies of leading universities that have successfully implemented zero-waste initiatives, aiming to divert at least 90% of their waste from landfills. Highlighting the University of California, Davis, the University of Edinburgh, and the University of Melbourne, it outlines their innovative strategies, including composting, recycling programs, sustainable procurement, and student engagement efforts. These institutions serve as exemplars of sustainability, demonstrating how comprehensive waste management practices can create a significant positive impact on the environment.

Table 5 Case Studies of Zero-Waste Universities: Strategies for Sustainability

University	Zero-Waste Initiatives
University of California, Davis	• **Composting:** Processes organic waste through on-site composting facilities, converting food scraps and landscaping debris into compost for use on campus farms and gardens. • **Recycling:** Invested in high-tech sorting systems to achieve over 90% diversion rate. • **Student Involvement:** Engages students through waste reduction campaigns, workshops, and student-led recycling drives.
The University of Edinburgh	• **Recycling Initiatives:** Campus-wide recycling program for paper, plastic, glass, and metal, with e-waste recycling programs for safe disposal of electronic devices. • **Food Waste Reduction:** Introduced portion control, surplus food donation programs, and composting systems in dining services.
The University of Melbourne	• **Sustainable Procurement:** Prioritizes purchasing products made from recycled materials and avoiding single-use plastics, with suppliers required to meet sustainability standards. • **Student Engagement:** Created the "Sustainability Advocates" program, where students lead waste reduction initiatives, organize waste audits, and promote recycling and composting.

The **RiHEI initiative** aims to foster sustainable growth and responsible university operations by enhancing student services and implementing green practices on campuses. Waste reduction and sustainable campus operations, including the adoption of circular economy principles, are key components of this transformation. By embracing zero-waste policies, promoting composting and recycling initiatives, and reducing single-use plastics, universities contribute to the goals of environmental stewardship, resource efficiency, and sustainability. These efforts align directly with the RiHEI project's objectives to green university campuses and serve as catalysts for sustainable development. Implementing best practices in waste management not only reduces the environmental footprint of HEIs but also creates healthier, more sustainable learning environments that model responsible behavior for students and staff. Moreover, by involving students in sustainability initiatives, universities can foster leadership and innovation in sustainability, preparing students to meet the challenges of a rapidly changing world.

Case studies from leading institutions like UC Davis, the University of Edinburgh, and the University of Melbourne demonstrate that achieving zero waste is possible and that these efforts have far-reaching impacts, contributing to global sustainability goals. The lessons learned from these universities can inform the three Georgian HEIs involved in the RiHEI initiative, helping them to design and implement waste management strategies that support the dual goals of enhancing student services and promoting sustainable campus operations.

By focusing on waste reduction, the RiHEI initiative ensures that Georgian universities not only modernize their student services but also position themselves as leaders in environmental sustainability. These efforts will contribute to building resilient, inclusive, and environmentally responsible educational environments that can serve as models for other institutions in Georgia and beyond, thereby advancing the overall objectives of the RiHEI project and the broader European sustainability agenda.

5.3. Energy Efficiency and Renewable Energy Initiatives

As HEIs continue to expand and modernize, their energy consumption rises, resulting in higher operational costs and increased environmental impacts. To address these challenges, many universities are adopting energy efficiency measures and transitioning to renewable energy sources such as solar, wind, and geothermal. These initiatives not only help reduce carbon emissions but also create sustainable, cost-effective energy solutions that align with global sustainability goals. This section explores the opportunities and challenges involved in energy management, the implementation of smart energy systems, and case studies of universities that have successfully transitioned to renewable energy.

5.3.1 Energy Management in HEIs: Challenges and Opportunities

Universities consume vast amounts of energy to support heating, cooling, lighting, technology, and research facilities. As campuses grow and student populations increase, the energy demand often outpaces the available infrastructure, resulting in higher energy costs and larger carbon footprints. Despite these challenges, HEIs are uniquely positioned to lead the

transition toward sustainable energy management due to their role as innovators and community leaders. Figure 2 shows challenges and opportunities in energy management for HEIs.

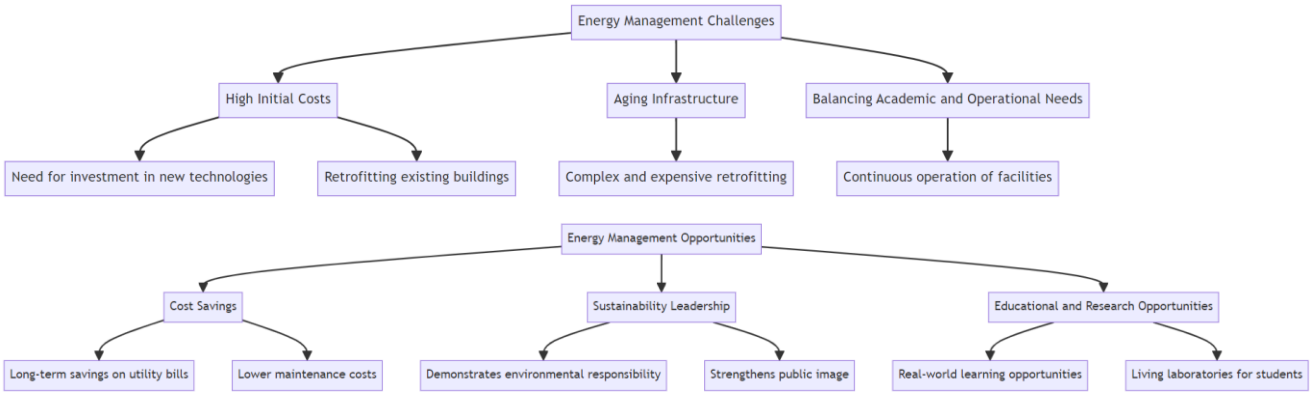


Figure 2. Challenges and Opportunities in Energy Management for HEIs

5.3.2 Implementing Smart Energy Systems on Campuses

Smart energy systems use digital technologies, data analytics, and automation to optimize energy consumption across university campuses. These systems are integral to reducing energy waste, managing renewable energy resources, and improving operational efficiency (Kourgiozou et al., 2021). The RiHEI initiative is focused on enhancing student services and greening campuses, and energy efficiency plays a crucial role in achieving these objectives. Energy-efficient and renewable energy systems on campuses not only reduce operational costs but also provide educational opportunities, empowering students to engage in sustainability practices. As universities under the RiHEI initiative work toward modernizing their infrastructure, integrating smart energy systems and transitioning to renewable energy sources such as solar, wind, and geothermal can help create greener, more sustainable learning environments.

Key components of smart energy systems:

1. **Energy Management Software**: These systems monitor and analyze energy usage in real-time, allowing universities to identify inefficiencies, optimize energy use, and make data-driven decisions to reduce consumption.
2. **Smart Grids and Meters**: Smart meters and grids enable better control and distribution of electricity, allowing universities to track energy consumption in specific buildings or departments. This granular data helps pinpoint energy waste and allocate resources more efficiently.

3. **Automated Building Controls**: Automated systems for heating, ventilation, air conditioning (HVAC), and lighting ensure that energy is only used when and where it is needed. These controls adjust to occupancy patterns, weather conditions, and time of day to maximize efficiency.

5.3.3 Energy Management in HEIs: Challenges and Opportunities

For the Georgian HEIs participating in the RiHEI initiative, addressing energy management challenges presents both obstacles and opportunities. Given the global transition toward sustainable energy, these universities can benefit from adopting energy management strategies that reduce energy consumption and operational costs. The integration of smart energy systems, such as automated building controls and energy management software, will allow Georgian universities to become models of energy efficiency and environmental stewardship, in line with the goals of the RiHEI project.

Renewable Energy Case Studies: Solar, Wind, and Geothermal

Many universities are leading the transition to renewable energy by investing in solar, wind, and geothermal energy systems. These renewable sources provide long-term cost savings, reduce carbon emissions, and serve as a model for sustainability in the wider community.

Table 6 illustrates the diverse renewable energy strategies employed by these universities, emphasizing their investments and the associated costs and benefits of each initiative.

Table 6.

University	Energy Source	Description	Costs and Benefits
Stanford University (USA)	Solar Energy	Stanford operates a solar generating plant that provides over 60% of its electricity needs as part of its commitment to achieve carbon neutrality by 2050.	• **Upfront Investment:** Approximately $500 million. • **Annual Savings:** Millions in energy costs. • **Carbon Emission Reduction:** 68%. • **Payback Period:** Expected to pay for itself within 20 years.
University of Twente (Netherlands)	Wind Energy	The university has installed several wind turbines on campus to generate renewable energy, significantly reducing reliance on non-renewable sources.	• **Challenges:** Local regulations, community resistance, and variability in wind patterns. • **Carbon Footprint Reduction:** 30%.

			• Provides a steady supply of green energy despite challenges.
Ball State University (USA)	Geothermal Energy	Ball State operates the largest geothermal heating and cooling system in the U.S., using the Earth's natural heat to regulate campus building temperatures, drastically reducing energy consumption.	• **Upfront Investment:** $83 million. • **Annual Savings:** Projected savings of over $2 million in energy costs. • **Carbon Emission Reduction:** Nearly 50%. • Supports university's sustainability goals.

5.4 Biodiversity and Ecosystem Services on University Campuses

The RiHEI initiative's focus on greening campuses can be further expanded through biodiversity and ecosystem services. Creating green spaces and promoting local biodiversity align with the initiative's goal of developing environmentally sustainable campuses that enhance student life while contributing to the broader environmental health of surrounding communities.

5.4.1 The Role of Green Spaces in Enhancing Campus Life

Green spaces on campuses are more than just aesthetically pleasing areas; they contribute to the overall well-being of students, staff, and faculty. Studies show that access to nature can improve mental health, increase cognitive function, and foster a sense of community.

1. **Mental Health Benefits**: Access to green spaces has been linked to reduced stress, anxiety, and depression among students. These spaces provide areas for relaxation, reflection, and recreation, helping students disconnect from the stresses of academic life (Reece et al., 2021).
2. **Academic Success**: Green environments have been shown to improve concentration and academic performance. Students who spend time in green spaces tend to experience less mental fatigue and report higher levels of creativity and productivity (Kweon et al., 2017).
3. **Community Engagement**: Green spaces also foster social interaction and a sense of belonging. Outdoor areas like gardens, parks, and green courtyards provide communal areas where students and staff can engage in social, cultural, and recreational activities (Gorgul et al., 2017).

The RiHEI initiative emphasizes the importance of creating modern and inclusive student services, and green spaces play a pivotal role in enhancing the well-being of students, staff, and faculty. For Georgian universities involved in the project, developing biodiverse green

spaces can improve student mental health, increase social interaction, and support academic success.

Green Roofs and Vertical Gardens

Green roofs and vertical gardens are innovative solutions that allow urban campuses to incorporate nature into their built environments. These features not only provide aesthetic value but also enhance biodiversity, improve air quality, and reduce energy consumption by providing natural insulation. Green roofs, covered with vegetation, help regulate building temperatures by absorbing heat and providing insulation. This reduces the need for air conditioning in the summer and heating in the winter, leading to energy savings. The University of Toronto has installed green roofs on several buildings, contributing to biodiversity by providing habitats for birds and insects. The green roofs also help manage stormwater, reducing runoff and preventing flooding during heavy rains.

Vertical gardens, or living walls, are plant installations on the exterior or interior walls of buildings. They help purify the air, reduce urban heat islands, and provide green space in densely populated urban areas. Columbia University in New York City has incorporated vertical gardens into several of its campus buildings. These living walls help improve indoor air quality, provide natural beauty, and support the university's sustainability goals by promoting biodiversity in an urban setting.

In line with the RiHEI initiative's goal to green university campuses, implementing green roofs and vertical gardens offers a practical solution to expanding green spaces, especially in urban environments. These innovative designs not only improve energy efficiency but also promote biodiversity and enhance air quality, contributing to healthier campus environments.

Landscaping for Biodiversity:

1. **Native Plant Species**: Using native plants in landscaping not only supports local ecosystems but also reduces water use and maintenance needs, as these plants are better adapted to local climates.
2. **Wildlife Habitats**: Universities can create habitats for local wildlife, such as birds, pollinators, and small mammals, through thoughtful landscape design. This includes creating green corridors, planting trees, and developing ponds or wetlands.
3. **Sustainable Water Management**: Rain gardens, permeable pavements, and water-efficient irrigation systems help manage stormwater and conserve water, reducing the environmental impact of campus landscaping.

As part of the RiHEI initiative, Georgian universities can enhance local biodiversity through sustainable landscaping practices that incorporate native plants and create habitats for local wildlife. Biodiverse landscapes contribute to ecological resilience and provide educational opportunities for students to engage in hands-on environmental learning.

5.5. Implementation

The success of green campus implementation depends on several key factors, including the involvement of all stakeholders, management commitment, the provision of adequate resources, and continuous education and training for all campus community members (Aedi, 2024). Experience worldwide confirms that a combination of top management commitment and staff and student engagement offers the best opportunity both for successful initiation and long-term performance of university sustainability programs. Table shows some practical strategies to bring this about, addressing the substantive “tactical” aspects of making it happen, broadly in line with the ISO 14001 Environmental Management System standard as adapted for the higher education context (UNEP, 2013).

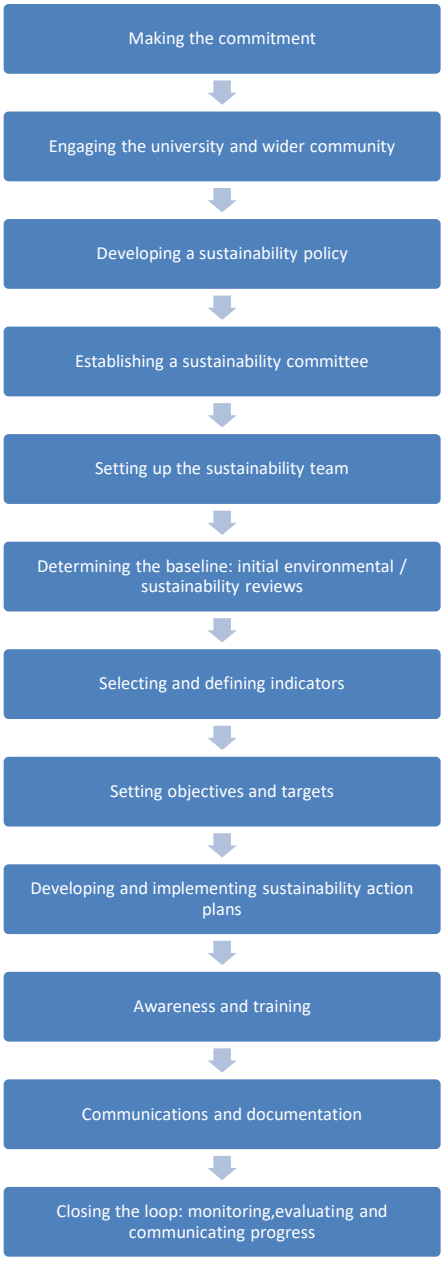


Figure 3. Process overview

Conclusion

Improving student services and greening campuses emphasizes the importance of modernizing student services and fostering sustainability on university campuses. The initiative focuses on enhancing career guidance, skill development, and particularly for students from marginalized or rural backgrounds. Key strategies include integrating industry partnerships for personalized career counseling, utilizing digital student profiles for customized learning experiences, and adopting practical learning models like the Teaching Factory concept.

Regarding sustainability, the initiative promotes greening campuses by aligning with the New European Bauhaus principles of sustainability, aesthetics, and inclusivity. This involves waste reduction, energy efficiency, renewable energy integration, and biodiversity projects. The aim is to create environmentally friendly, accessible, and inclusive campus environments. Universities may play a critical role in addressing climate change and promoting an environmentally friendly culture among staff and students by integrating sustainability into operations and education. These efforts not only modernize campuses but also enhance student well-being and prepare institutions for a more sustainable future.

References

Aedi, N., 2024. Strategies and Best Practices for Implementing Green Campus: A Change Management Reviews. J. Ecohumanism 3, 2492–2502. https://doi.org/10.62754/joe.v3i4.3771

Alzaydi, A., 2024. Balancing creativity and longevity: The ambiguous role of obsolescence in product design - ScienceDirect [WWW Document]. URL https://www.sciencedirect.com/science/article/pii/S0959652624006863?casa_token=bHQEPYhIE2kAAAAA:9_YfjbIigJvfviY4jii9-RyHNPDGKLAo_P2rTqQY-a9tW-vV73N0acRwS_KblcX-GRyqNJAgyg (accessed 10.3.24).

Amaral, A.R., Rodrigues, E., Gaspar, A.R., Gomes, A., 2020. A review of empirical data of sustainability initiatives in university campus operations - ScienceDirect [WWW Document]. URL https://www.sciencedirect.com/science/article/pii/S0959652619344282?casa_token=uFCR9UAeoKgAAAAA:eyrWqpl95ZLQDlPPsy-eozvtg9vcAshIxsGuX0jVFvVYy1b5AYhc8M4--usDVjz3RVFPf4Wcsg (accessed 10.3.24).

Atici, K.B., Yasayacak, G., Yildiz, Y., Ulucan, A., 2021. Green University and academic performance: An empirical study on UI GreenMetric and World University Rankings. J. Clean. Prod. 291, 125289. https://doi.org/10.1016/j.jclepro.2020.125289

Bowden, J.L.-H., Tickle, L., Naumann, K., 2021. Full article: The four pillars of tertiary student engagement and success: a holistic measurement approach [WWW Document]. URL https://www.tandfonline.com/doi/full/10.1080/03075079.2019.1672647 (accessed 12.7.24).

Bremaghani, A., 2024. Utilization of Organic Waste in Compost Fertilizer Production: Implications for Sustainable Agriculture and Nutrient Management. Law Econ. 18, 86–98.

Buckley, J.B., 2023. From “Cliques” to “Common Ground”: Social Class, Layered Belonging, and Characteristics of Symbolic Boundaries in the Transition From Public High Schools to a Public University: The Journal of Higher Education: Vol 94, No 1 [WWW Document]. URL https://www.tandfonline.com/doi/abs/10.1080/00221546.2022.2131963 (accessed 12.7.24).

Cembranel, P., Gewehr, L., Moro, L.D., Fuchs, P.G., Birch, R.S., Guerra, J.B.S.O. de A.A., 2024. The pivotal role of higher education institutions in cultivating a sustainable development goals-centric culture. Int. J. Sustain. High. Educ. 25, 1385–1411. https://doi.org/10.1108/IJSHE-01-2024-0057

Chankseliani, M., Qoraboyev, I., Gimranova, D., 2021. Higher education contributing to local, national, and global development: new empirical and conceptual insights | Higher Education [WWW Document]. URL https://link.springer.com/article/10.1007/s10734-020-00565-8 (accessed 12.2.24).

Chryssolouris, G., Mavrikios, D., Rentzos, L., 2016. The Teaching Factory: A Manufacturing Education Paradigm. Procedia CIRP 57, 44–48. https://doi.org/10.1016/j.procir.2016.11.009

Claeys-Kulik, A.-L., Jørgensen, T.E., Stöber, H., 2019. Diversity, Equity and Inclusion in European Higher Education Institutions, Results from the INVITED project.

Darling, M.J., West, C.W., 2024. Unit 24: Culturally inclusive mentoring: a DEI framework in higher education in: Handbook on Diversity, Equity, and Inclusion in Public Administration [WWW Document]. URL https://www.elgaronline.com/edcollchap/book/9781802206173/book-part-9781802206173-38.xml (accessed 12.7.24).

Dey, F., Cruzvergara, C.Y., 2014. Evolution of Career Services in Higher Education. New Dir. Stud. Serv. 2014, 5–18. https://doi.org/10.1002/ss.20105

Dirks, A., 2021. A Community Compost Exchange Manual: reconnecting municipal organic waste and soil management [WWW Document]. URL https://yorkspace.library.yorku.ca/items/279f3138-b034-4b11-a9c3-2069c1c89f87 (accessed 10.3.24).

Dollinger, M., Coates, H., Bexley, E., Croucher, G., Naylor, R., 2018. Framing international approaches to university–industry collaboration. Policy Rev. High. Educ. 2, 105–127. https://doi.org/10.1080/23322969.2018.1424560

Elsayed, M., 2023. Sustainable Campus: A Proposed General Framework for Transforming the Tanta University Campus into Sustainability. https://doi.org/10.13140/RG.2.2.26329.12641

Findler, F., Schönherr, N., Lozano, R., Reider, D., Martinuzzi, A., 2019. The impacts of higher education institutions on sustainable development: A review and conceptualization. Int. J. Sustain. High. Educ. 20, 23–38. https://doi.org/10.1108/IJSHE-07-2017-0114

Gallagher, S.R., 2022. The Future of University Credentials: New Developments at the Intersection of Higher Education and Hiring. Harvard Education Press.

Gobert, J., Allais, R., Deroubaix, J.-F., 2021. Repair and reuse: Misalignments between stakeholders and possible users. J. Clean. Prod. 317, 128454. https://doi.org/10.1016/j.jclepro.2021.128454

Gorgul, E., Luo, L., Wei, S., Pei, C.D., 2017. Sense of Place or Sense of Belonging? Developing Guidelines for Human-centered Outdoor Spaces in China that Citizens Can be Proud of - ScienceDirect [WWW Document]. URL https://www.sciencedirect.com/science/article/pii/S1877705817329521 (accessed 10.3.24).

Hayles, C.S., 2019. INSPIRE sustainability internships. Int. J. Sustain. High. Educ. 20, 452–469. https://doi.org/10.1108/IJSHE-03-2019-0111

Katikas, L., Sotiriou, S., 2023. Schools as living labs for the new European bauhaus | Universal Access in the Information Society [WWW Document]. URL https://link.springer.com/article/10.1007/s10209-023-01044-4 (accessed 12.2.24).

Kiss, M., 2018. Revision of the Europass framework, EU Legislation in Progress. European Parliament Reasearch service.

Kourgiozou, V., Commin, A., Dowson, M., Rovas, D., Mumovic, D., 2021. Scalable pathways to net zero carbon in the UK higher education sector: A systematic review of smart energy

systems in university campuses - ScienceDirect [WWW Document]. URL https://www.sciencedirect.com/science/article/pii/S1364032121005219?casa_token=ZZbsatmZyMsAAAAA:vLubOZnBYxchAdHY-_tpmy_Q-3Xd1zoOUaywr-Q_-Ddu87CiJiB8JeaReVBs59L4bp8jKqxzmw (accessed 10.3.24).

Krizsán, A., Belén Ami, A., Galácz, A., Kellner, A., 2019. Gender Equity Plan.

Kweon, B.-S., Ellis, C.D., Lee, J., Jacobs, K., 2017. The link between school environments and student academic performance. Urban For. Urban Green. 23, 35–43. https://doi.org/10.1016/j.ufug.2017.02.002

Leal Filho, W., Skouloudis, A., Brandli, L.L., Salvia, A.L., Avila, L.V., Rayman-Bacchus, L., 2019. Sustainability and procurement practices in higher education institutions: Barriers and drivers - ScienceDirect [WWW Document]. URL https://www.sciencedirect.com/science/article/pii/S0959652619317366?casa_token=X1IduC2hyTYAAAAA:Xze-Mwl2DrNNoH9c6g3CKUmj8TGjUhfbk90_kwu5iKQXfzsxbb3uXmlrxNb7yekMnAwQg1cNuA (accessed 10.3.24).

Ling, X., Chen, J., Chow, D.H.K., Xu, W., Li, Y., 2022. The "Trade-Off" of Student Well-Being and Academic Achievement: A Perspective of Multidimensional Student Well-Being. Front. Psychol. 13. https://doi.org/10.3389/fpsyg.2022.772653

Lingenfelter, P.E., 2018. The State Higher Education Executive Officer and the Public Good: Developing ... - Google Books [WWW Document]. URL https://books.google.co.uk/books?hl=en&lr=&id=GapmDwAAQBAJ&oi=fnd&pg=PA15&dq=In+the+mid-20th+century,+educators+slowly+began+to+realize+that+supporting+students+with+more+than+just+academics+would+create+a+well-rounded+and+successful+student&ots=OQOwkslWMF&sig=MkYB17C3VKH0x5vhDP049UdPIyo&redir_esc=y#v=onepage&q&f=false (accessed 12.7.24).

McNair, T.B., Albertine, S., McDonald, N., Major Jr, T., Cooper, M.A., 2022. Becoming a Student-Ready College: A New Culture of Leadership for Student ... - Tia Brown McNair, Susan Albertine, Nicole McDonald, Thomas Major, Jr., Michelle Asha Cooper - Google Books [WWW Document]. URL https://books.google.co.uk/books?hl=en&lr=&id=zmF6EAAAQBAJ&oi=fnd&pg=PR17&dq=Student+services+that+help+support+learning+and+well-being+are+naturally+delivered+with+a+focus+on+inclusiveness,+personalized+learning+and+student+success+in+the+midst+of+an+increasingly+challenging+world.&ots=c07AOLL2he&sig=Of3Tk4DFp0sW011Ry32wNra6TTg&redir_esc=y#v=onepage&q&f=false (accessed 12.7.24).

Mohamed, N.H., Noor, Z.Z., Sing, C.L.I., 2020. Environmental Sustainability of Universities: Critical Review of Best Initiatives and Operational Practices | SpringerLink [WWW Document]. URL https://link.springer.com/unit/10.1007/978-981-13-7260-5_2 (accessed 10.3.24).

Morgan, M., 2012. The evolution of student services in the UK. Perspect. Policy Pract. High. Educ. 1–8. https://doi.org/10.1080/13603108.2011.652990

Nguyen, X.C., Dao, D.C., Nguyen, T.T., Tran, Q.B., Nguyen, T.T.H., Tuan, T.A., Nguyen, D.D., 2022. Generation patterns and consumer behavior of single-use plastic towards plastic-free university campuses - ScienceDirect [WWW Document]. URL https://www.sciencedirect.com/science/article/pii/S0045653521035311?casa_token=s_dUm1l53RcAAAAA:M-TQctTKX9f2I9VuTVFhmdHNn-pTsZVMQz7HI4LIXwMyCDI4il_-qGdrsqpB1AGMsaGdvUD3dQ (accessed 10.3.24).

Pointon-Haas, J., Waqar, L., Upsher, R., Juliet, F., Byrom, N., Oates, J., 2024. A systematic review of peer support interventions for student mental health and well-being in higher education | BJPsych Open | Cambridge Core [WWW Document]. URL https://www.cambridge.org/core/journals/bjpsych-open/article/systematic-review-of-peer-support-interventions-for-student-mental-health-and-wellbeing-in-higher-education/C7E553BD89F8F17E78583E9AC2E3ACF6 (accessed 12.7.24).

Popowska, M., 2024. Greening Higher Education in Europe: Institutional Transitions to Sustainable Development. Taylor & Francis.

Reece, R., Bray, I., Sinnett, D., Hayward, R., Martin, F., 2021. Exposure to green space and prevention of anxiety and depression among young people in urban settings: a global scoping review. J. Public Ment. Health 20, 94–104. https://doi.org/10.1108/JPMH-02-2021-0030

Ribeiro, J.M.P., Hoeckesfeld, L., Dal Magro, C.B., Favretto, J., Barichello, R., Lenzi, F.C., Secchi, L., De Lima, C.R.M., De Andrade, J.B.S.O., 2021. Green Campus Initiatives as sustainable development dissemination at higher education institutions: Students' perceptions - ScienceDirect [WWW Document]. URL https://www.sciencedirect.com/science/article/pii/S0959652621018898 (accessed 9.16.24).

Rotar, O., 2022. Online student support: a framework for embedding support interventions into the online learning cycle | Research and Practice in Technology Enhanced Learning [WWW Document]. URL https://link.springer.com/article/10.1186/s41039-021-00178-4 (accessed 12.7.24).

Singh, A., Kumar, P., 2024. Student Stress and Mental Health Crisis: Higher Education Institutional Perspective, in: Student Stress in Higher Education. IGI Global Scientific Publishing, pp. 218–229. https://doi.org/10.4018/979-8-3693-0708-3.ch013

Singha, R., Singha, S., Jasmine, E., 2024. The Intersection of Academics and Career Readiness, in: Preparing Students From the Academic World to Career Paths: A Comprehensive Guide. IGI Global Scientific Publishing, pp. 246–266. https://doi.org/10.4018/978-1-7998-7999-2.ch011

Stentiford, L., Koutsouris, G., 2021. What are inclusive pedagogies in higher education? A systematic scoping review. Stud. High. Educ. 46, 2245–2261. https://doi.org/10.1080/03075079.2020.1716322

Stone, C., 2022. From the margins to the mainstream: The online learning rethink and its implications for enhancing student equity. Australas. J. Educ. Technol. 38, 139–149. https://doi.org/10.14742/ajet.8136

Suárez-Eiroa, B., Fernández, E., Méndez-Martínez, G., Soto-Oñate, D., 2019. Operational principles of circular economy for sustainable development: Linking theory and

practice - ScienceDirect [WWW Document]. URL https://www.sciencedirect.com/science/article/pii/S0959652618340009?casa_token=4W2JuJKI77QAAAAA:ZdWwIKLFWhLw8bo9d-PWCv5wnMbPBDq3AIFGx4fvfquKtn_JEGVEEC_WEtX-cGdTQidIIxVfcA (accessed 10.3.24).

Wijnia, L., 2021. Full article: Well-being, academic success, and the role of relationships [WWW Document]. URL https://www.tandfonline.com/doi/full/10.1080/01443410.2021.1994305 (accessed 12.7.24).

Zhao, X., Boruah, B., Chin, K.F., Đokić, M., Modak, J.M., Soo, H.S., 2022. Upcycling to Sustainably Reuse Plastics - Zhao - 2022 - Advanced Materials - Wiley Online Library [WWW Document]. URL https://onlinelibrary.wiley.com/doi/full/10.1002/adma.202100843?casa_token=-ILTxPfaUpYAAAAA%3AGKNTZ3dAF2gbPG6zTy9SuIMCrZiXFctL2XEcG-TYpVrrnVNLCpENDEuZJcCMLH5Dix6h_QdQpT5LQh0 (accessed 10.3.24).

UNEP, 2013. Greening Universities Toolkit V2.0, TRANSFORMING UNIVERSITIES INTO GREEN AND SUSTAINABLE CAMPUSES : A TOOLKIT FOR IMPLEMENTERS, nited Nations Environment Programme, 2014.

European Commision, 2021. Implementation guidelines Erasmus+ and European Solidarity Corps Inclusion and Diversity Strategy, Directorate-General for Education, Youth, Sport and Culture European Commission, Brussels.

European Commission, 2021. *New European Bauhaus Compass*.

Erasmus+, Comprehensive User Guide for Digital Erasmus+ Learning Agreements

Erasmus , year. Erasmus charter for higher education 2021-2027 guidelines

RiHEI

FACULTY OF MANAGEMENT University of Lodz

TUM int TUM International GmbH The University Company

MARTIN-LUTHER-UNIVERSITÄT HALLE-WITTENBERG

KUTAISI INTERNATIONAL UNIVERSITY



Co-funded by the European Union

CC BY NC SA

Project Number: 101125355 (ERASMUS-EDU-2023-CBHE)

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.